The Builder.

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Fountain at Breslau, and Grave Sculpture at Hamburg.....Herr Hugo Lederer, Sculptor.
Warren Hill, Crowborough } .....Mr. Langton Dennis, A.R.I.B.A., Architect.
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The London County Council and the Water Bills.

THE Parliamentary Committee of the London County Council furnished, under the date February 14, a Report to the Council on the Metropolitan Water Board (Charges) Bill and the Metropolitan Water Board (Various Powers) Bill. This Report constitutes a useful and suggestive criticism on some points in the two Bills, and is worth a brief consideration in connexion with them.

In regard to the first point on which the Parliamentary Committee's Report touches in considering the "Charges" Bill, they seem to be rather at sea both as to their facts and their reasoning, and moreover to be actuated by a rather narrow-minded policy of wishing to look after the interests of ratepayers within the County of London, to the detriment of those in what is called "the extra-London district." After observing that the basis of charge for domestic purposes, provided in the Bill, is to be "the rateable value of any house as appearing in the valuation list," they point out that at present the charge in the extra-London districts is based on "annual value" and not on "rateable value," and that this annual value is higher than the rateable value would be. As the rateable value of houses in the extra-London district would be lower than for those in the town, the Committee regard this arrangement of charging the outside districts by annual value as a means of "equalising" the charges as between the County of London and the outside districts; and they deprecate the proposed substitution of rateable value charges to the latter, on the ground that it will throw too much of the cost on the London County ratepayers. They say—"The present practice of charging water-rates is therefore in the direction of equality between London and the extra-London district, but if the proposal in this Bill is adopted it will have the effect of transferring some part of the burden from the extra-London district to London, and this would intensify any existing inequality."

Putting aside the rather selfish point of view here suggested—it may be the duty of the Council to fight for the County ratepayers as against the outsiders—we should like to know on what statistics the idea of this present "equality," which is to be unhappily disturbed, is based. According to our best information, it is inequality which now exists between the charges within and without the London County; an inequality which the proposal in the Bill would do something, though not everything, to rectify. Let us cite a concrete case. A householder formerly living within the County migrated to an extra-London district. The two houses happened to be exactly the same in their water requirements, the same number of baths and the same number of water-closets in each; but he found that his water-rate in the "extra" district was about 30 per cent. more than it had been on the London house. On complaining of this to the district water authority, he was told that it was so at present because the charges were at present those levied previously by the district water company, but that they would be equalised when the charges and arrangements of the new Board had been settled. It would seem from this instance that the "extra" districts are now paying more than their share of the burden; that "equality" is promised as the result of the action of the Water Board; and that this is the very thing that the Parliamentary Committee of the London County Council deprecate; in other words, the "extra" districts are now charged higher instead of lower than the County; and the Bill which would tend to remove the inequality is regarded by the Parliamentary Committee as one which would involve injustice to the London County ratepayers. The facts seem to be the other way; it is the "extra-London" ratepayer who is already overcharged, and the Parliamentary Committee are deprecating the effect of a Bill which would tend to adjust matters more fairly; they are making themselves out as victims in the future, whereas it is the extra-London ratepayers who are victims in the present, and who hope (not unnaturally) to be rid of some of their burden when the charges are finally adjusted under the new Act.

Another point that is touched upon in the Parliamentary Committee's Report,

but by no means with sufficient decision, is the list of definitions of the uses of water which are considered not to be included under "domestic purposes." For all water used for other than domestic purposes, of course, an extra charge is to be made, and there is a list of the "purposes" which do not come under the head of "domestic." The majority of these are rightly classed; but among the forbidden uses are "cleansing sewers and drains," "fire extinction," "flushing drains by means of any apparatus discharging automatically," and "warming and ventilating purposes." The Report "particularly draws attention" to these restrictions, and may well do so. The only one which may perhaps be open to two opinions is that relating to "warming and ventilating." Water is not much used in connexion with ventilation, except in public buildings; and in regard to warming it may perhaps be rightly urged that in this climate, where there is little really severe weather, the provision of a hot-water heating system in a private residence is rather in the nature of a luxury, not likely to be indulged except by the few, and for which they may reasonably be asked to pay. But the other restrictions are so many difficulties placed in the way of keeping a house, more especially a street house with the drains usually running under it, in a proper sanitary condition. The flushing of house drains from time to time, in a town especially, is one of the most necessary conditions for keeping them in a proper state, and a system of automatic flushing is the best way of ensuring this. It need not be done at very short intervals, and it may be done to a great extent with waste water which would otherwise be allowed to run off. It is one of the best steps that a householder can take to keep his drains clean, a matter which concerns not only his own health but to some extent, in a crowded city, the health of his neighbours. Any legislation to put difficulty and expense in the way of this form of sanitary precaution is absolutely wrong. There ought rather to be a premium on adopting it.

But the cream of the joke is when we come to the provision about baths. "Domestic purposes," it appears, include water for culinary purposes, washing, and drinking (these are not stated but may be presumed to be implied), and water-closets, and "baths constructed or fitted *so as not to be capable of containing when filled more than fifty gallons of water*." The Report says mildly, "We have been advised that the large majority of baths are capable of containing more than 50 gallons, and would therefore be excluded from the expression 'domestic purposes.'" Could not the committee have obtained positive statistics and made a more decided criticism? It is an absolute absurdity; the suggestion of some drafting lawyer who does not know what a bath will hold or how much a gallon is. We will give them the statistics. The average size of the baths supplied to ordinary residential houses of a good class does not vary much; we have measured two of them, by different makers, and their cubic contents up to the level of the overflow opening (we need not count what is above that) average 14 cub. ft.; we may take it at that. A cubic foot of water represents, within a very small fraction, 6¼ gallons; it is an easy sum; result, the bath holds 87½ gallons. Many superior baths, made for large houses with spacious bath-rooms, no doubt hold a good deal more than that; but what we have given is the average contents of a bath in an average house; and all these baths will be taxed for extra rates. The 50-gallon bath could only represent the small trumpery kind of bath put by speculating builders into 30*l.* houses, which are too small for total immersion—the very object of a household bath. The "domestic purposes" section of the Bill is literally a tax on ordinary cleanliness and sanitation. Is this absurdity to be allowed to go on?

THE ARCHITECTURAL ASSOCIATION SKETCH BOOK.

WE have now two volumes of the Architectural Association Sketch-Book to comment on; volumes 9 and 10 of the Third Series, the latter only of very recent appearance. If it goes on continually, is it possible that there will one day be an end of things to sketch; a sigh, like Alexander's, for more worlds to conquer? We do not know whether there is any rule that no subject shall appear which has ever before been illustrated in the Sketch-Book; or whether a search through the earlier volumes would reveal the fact that there had been repetitions. It seems probable, however, that there is enough sketchable material in this country to serve the Sketch-Book series through one generation of life, at all events; and after that the new generation could begin again. The Continent and the East, of course, offer almost inexhaustible resources; but then they are not so attainable. Volume 9 offers eighteen foreign subjects (all but two in Italy) out of seventy-two. Volume 10 goes a little further afield; out of seventy-two plates, twenty-eight deal with foreign subjects—all but two in this case also from Italy; the two odd ones being from Spain.

As compared with our recollection of some of the older volumes, it would seem that there is in these two latest sets much less than there used to be of picturesque and effective perspective sketching, much more of measured drawing. The change is significant of the times, and of the progress in architectural analysis; perhaps also of the feeling that a book like this should be more for practical study than for artistic recreation. It is recognised that one learns more about a building, and about the lessons it can teach, by making measured drawings of it than by making a perspective view. Yet it must be admitted that the perspective view involves some teaching and training, both to eye and hand, which making measured drawings does not afford; possibly not so valuable, but different; besides the immediate pleasure to the eye afforded by the outward and visible result. On the whole, we rather regret the falling off in perspectives; they may not have been so useful, but they were very attractive. Vol. 9 only contains ten perspectives out of the seventy-two plates. We could have welcomed a few more.

There is far less of church work (mediæval, that is) than there used to be; which is also comprehensible. The second plate of Vol. 9, however, starts with a church subject, that of St. Oswald, Ashbourne ("romantic Ashbourne"), of which the plan shows both transepts crooked in the setting out; crooked in different ways on each side, not a right angle in it; a piece of hopelessly bad setting out, which the crackbrained enthusiast may find to be symbolical if he likes, or an intentional "refinement"; he is capable of anything. The chancel bends very slightly to the north side, but not enough to have any of the symbolical signification which possibly did belong in some cases to this deviation of line. The nave has an arcade down the centre nominally, though it is really 18 in. off the centre line. Altogether a curious piece of planning, or failing to plan; worth putting on record. The late spire, 185 ft. 6 in. from the plinth to the cap-stone, is a very graceful one, well connected with the tower. Sections of mouldings are not forgotten. But if Ashbourne church plan is askew, what is one to say to Haddon Hall plan and its "refinements"? Mr. E. G. Wylie, who must have found the measuring somewhat of a job, gives it very completely, with shading to distinguish the different dates. The building is shown entirely in elevations; indeed pictorial views of it have somewhat too much abounded. A building of another class, strictly symmetrical and—dull, is St. Paul's, Deptford, of which Mr. T. J. Bee furnishes plans and elevations; but to what good end, except to suggest to one who is minded to design a classic church, "Go thou and do—better"? Somerset House is a classic building of a different and more elaborate type, and Mr. Harold Hillyer's five drawings, with a complete plan, form a valuable set; his detail elevations are beautifully drawn and printed, in a grey tinted line which lends a certain suggestion of colour to them. A little further on Mr. J. C. Robinson gives an illustration of a really curious thing, a stained glass sundial in a window at 132, High-street, Marlborough; an upright oblong pane in the midst of a leaded oval, with scroll-work in the spandrels; the white glass marked with the hour lines (presumably the gnomon is outside), on the glass is the cunning presentment of a fly, as if accidentally settled there. The colouring is not reproduced. Mr. Herbert A. Hook gives several plates of illustrations of South Wraxall Manor House, including a perspective sketch of the drawing-room bay, where the two large mullioned windows at right angles to each other are separated only by a thin pier at the angle, built in upright stones tied in by the transom courses, as if from sheer love of a bit of ingenious and rather risky building. It may be questioned whether the interior wooden details were much worth drawing. They are certainly not worth imitating.

Mr. Vincent Hooper's drawing of the details of a bay in Wells cloisters is very well done, and includes a careful small isometric drawing of detail as seen looking up at one of the angles. This is a kind of

drawing calculated to assist the student who is making a first acquaintance with the mysteries of stone vaulting. Mr. Arthur G. Wilson's measured drawings of the Church of St. Monance, Fifeshire, show a very curious and interesting building, only chancel and transepts, the plan looking like an inverted T, with a parapetted tower and a short stumpy spire rising naïvely off it, with no kind of connexion. Judging from the plan, there would seem never to have been any nave; the panel of descriptive text on one of the plates is unfortunately reduced too small to be easily read without a magnifying glass. The sections of mouldings are interesting, some of them quite peculiar, and different from anything one sees in English Gothic.

Of the foreign examples Mr. A. G. MacNaughtan's are the most important contributions. He gives a beautiful geometrical drawing of part of the loggia of the Pazzi Chapel in Santa Croce, and a pretty complete set of measured drawings of Vignola's Villa Papa Giulio at Rome; a kind of classic which really is worth studying, though even Vignola's name shall not persuade us to like his exterior columns in swaddling bands with the capital and base protruding. But the details of the loggia in the garden front are beautiful of their kind, and beautifully shown in the drawing. We must compliment Mr. E. F. Reynolds also on an effective symbolical title-page, boldly drawn in ink line.

The title-page to Vol. 10, by Mr. W. Curtis Green, is not symbolical, but a representation of "A Roofless Temple at All-Hallows College"; an admirable piece of black and white drawing, especially in the contrast obtained between the darkest and lightest portions, the grille and the statue behind sparkling out against the dark foliage in the distance. In the plates we begin with ancient ecclesiastical work, Mr. W. S. A. Gordon's fine elevation drawing of the beautiful early decorated front of Binham Abbey. Mr. McLachlan follows with a drawing of the delicate painted decoration of St. Andrew's Chapel, Canterbury Cathedral, and following this is something in the old style—a bold perspective pen-drawing by Professor Pite of part of the cloisters at Canterbury. The gate-pier to Ickworth Park, given by Mr. C. Hale, forms a good example of a classic gate pier and urn finial, with good mouldings. Mr. Quirke's plan of Old Shoreham Church shows again the careless and indifferent setting out of the transepts, apparently at a right angle judged by the eye, while the plan of the tower seems to have settled itself by some accident. The details of the church are very completely given. Among other subjects of interest we are grateful to Mr. G. Drysdale for the measured drawings of the hexagonal "Conduit" at Sherborne.

Among the larger buildings illustrated is Burghley House, the well-known mansion near Stamford, the name of which is popularly known through one of Tennyson's early poems. The drawings are by Mr. H. S. Traylen, who gives two elevations and some details of this rich and somewhat fantastic Elizabethan house. It is a pity that the plan could not be given, as it is a very characteristic one; if we remember right, almost devoid of connecting corridors, whole ranges of rooms opening one out of another, on the upper floor at all events. Possibly there were difficulties in the way of measuring the interior.

Mr. J. Harold Gibbons contributes two very useful double-page sheets of the vaulting of one of the apsidal chapels at Tewkesbury. These are followed by a fine perspective drawing by Mr. Mears of the tower of St. Andrew's, Wells; a typical Somersetshire tower.

Among the foreign subjects are three sheets of very elaborate drawings of the rood-screen at Bois-le-duc by Mr. Swarbrick, a set of Royal Academy prize drawings, if we remember right; and Mr. Matthew J. Dawson furnishes a perspective view of the Florence Campanile soaring into the air, with the landscape seen below; probably taken from the roof of the cathedral, or treated as if it were. The base is given on another drawing. Mr. Walter S. George contributes an elevation and section of the simple and very interesting cloisters of San Lorenzo, Florence, with grey limestone columns and white rough-cast walls, a lesson in simplicity of design; and also a very delicately executed drawing of the Chapel of San Miniato. One of the best drawings in the volume is the one, reproduced apparently from a pencil drawing, of the beautiful sculptured font in the cathedral of Siena, by Mr. L. Rome Guthrie. The church of S. Maria dei Miracoli is also very fully illustrated, in a perspective view by Mr. C. Gascoyne, and by plan, elevations and sections, and two very fine double-page sheets of details, by M. Percy W. Lovell, which form altogether one of the most important contributions to the volume.

We have generally been in the habit, when we have had the pleasant task of noticing the contents of these Sketch-books (which really merit a more monumental kind of title), of giving a reduced reproduction of one or two of the drawings as examples of the contents; and in this instance we have selected, as one of the most favourable examples we could give, the drawings by Mr. W. Davidson of two painted panels in Ranworth Church, Norfolk, representing respectively St. George and St. Michael. No finer examples could be found of those painted panels on the lower part of the rood-screen which are such a characteristic of the Norfolk churches; in spite of the stiff mediæval drawing, the figures, that of St. George especially, have a remarkable energy and dignity; and the panoply of St. George is an interesting example of mediæval ideas as to decorative costume. Mr. Davidson has done them every justice in his fine drawings, which are a credit to the Sketch-Book. We should have liked, however, to have seen a note as to the actual size of the original panels.

We wish continued success to the Architectural Association Sketch-Book, carried on at present under the able editorship of Mr. G. B. Lewis and Mr. Theodore Fyfe.

NEW CHURCH, HORNSEY.—The Taynton and Guiting Quarries, Ltd., ask us to state that this church, described last week under the heading "General Building News," was built with Guiting stone from their quarries.

NOTES.

The President of the R.I.B.A. "At Home."

THE smoking "At Home" given by the President of the Institute at Conduit-street on Monday was as well attended, and the room as thoroughly permeated with grateful smoke, as is usual on these occasions of re-union. The objects of interest hung on the walls were in three groups; a series of plans of Ancient Rome by Professor Lanciani; a series of very interesting measured drawings by Mr. Roger Traquair of the Byzantine churches of Constantinople (excluding S. Sophia, which is a problem apart). Some of these have not been measured or published before. The drawings are in preparation for a book on the subject. The churches dealt with were further illustrated by photographs. The third exhibition was of a number of very curious and interesting drawings for various buildings by two of the Smythsons, or Smithsons, architects of the late XVIth and early XVIIth century. There were two Smithsons, Robert and Huntingdon, the latter being probably the son of the former (Robert was born 1535; Huntingdon died in 1648). There is a third Smithson architect, John, who belongs to the later XVIIth century. The drawings were the loan of a private owner. It is a pity that they cannot be secured for the Institute Library, which would be the most suitable repository for them.

Trees in Kensington Gardens.

THE explanation of the Chief Commissioner of Works in the House of Commons last week will relieve the anxiety not unreasonably expressed that a too wholesale felling and lopping of the elms in Kensington Gardens was going on. Mr. Harcourt states that he has taken advice from persons outside his department, who are expert in arboriculture, and that no more trees are being touched than is absolutely necessary. Ancient elms, however beautiful in form, are unquestionably frail and treacherous trees, and large branches will suddenly break off on the stillest of summer days. When a number of trees about the same age begin to decay, and work of a forestral kind has to be done on them, people are struck with fear. It is quite natural, but the persons who are really blameworthy are our forefathers, who did not, after the Kensington trees had grown towards maturity, plant young trees to take their places. Avenues, no doubt, are most difficult to treat in this respect. In a wood or forest there is always a sequence of trees; in an avenue or artificial glade it is not easy to find suitable places for young trees without spoiling the general appearance of the scene.

West London One Hundred Years Ago.

THE *Times* of February 13 reprints from its number of February 12, 1807, three curious items. One item states that "a range of elegant houses is erecting to the west of Oxford-street turnpike. The fronts towards Hyde Park are to be elegantly stuccoed, and they are to be named after Lord Nelson's glorious victory—Trafalgar." Lockie's "Topography of London," 1813, indexes

"Trafalgar-place, Uxbridge-road, entrance about ⅛ mile on the right from Tyburn turnpike;" yet the houses seem to be the present Connaught-place, also mentioned by Lockie. In 1825 the turnpike was shifted to Winchester-row in Edgware-road, then to Maida-vale, and eventually to Kilburn. The announcement that the grand main between the "Gentlemen of Kent and Surry" will be fought at the Cockpit Royal on the south side of St. James's Park, recalls the circumstance that the cockpit stood upon ground belonging to Christ's Hospital, of which the governors refused to renew the lease in 1816. It had been built, in Birdcage-walk, for Charles II., and the site has been marked to our time by Cockpit-steps. At the Restoration the State Cockpit was in Great James-street, Bedford-row, where Cockpit-yard has survived, and was so used until 1752. There were others in the town, for instance, in Drury-lane and Tufton-street, Westminster, and at Whitehall. The Act of 5 & 6 Will. IV., c. 59, suppressed the so-called sport. Another item says that the town residence of the late Duke of Gloucester is being altered and improved for the Earl Grosvenor. Gloucester House, the residence of the late Duke of Cambridge, at the corner, west, of Park-lane and Piccadilly, was demolished two years ago for the erection of a block of residential flats after designs by Messrs. Collcutt & Hamp.

The New Admiralty Docks at Devonport.

THE important works which were opened on Thursday last week by the Prince and Princess of Wales constitute the realisation of a most extensive scheme of dock construction by which an area of about 120 acres has been added to Devonport Dockyard. The new works include a closed basin with the water area of 35½ acres and the uniform depth of 32 ft. 6 in. at low water; an entrance-lock, 730 ft. long, capable of being used as a dry dock; three graving docks, of which two measure about 740 ft. long and the third 660 ft. long; a tidal basin with the water area of 10 acres; and a river wall some 3,000 ft. long, on the northern and western sides of the site. In addition to the lock, the closed basin is provided with a side entrance from the Hamoaze, where the low-water depth is 33 ft., and by the construction of an interior pier the quay length is increased to 5,000 ft. Provision is made by means of floating caissons for increasing the effective length of the entrance lock to 787 ft., while the two longer graving docks are constructed so that each of them will accommodate two vessels at a time, the available length of the compartments when floating caissons are used being about 500 ft. and 300 ft. respectively. The effective length of the third graving dock with floating caissons is 703 ft. To enable the contractor to carry out the works without the inconvenience caused by the presence of water, the whole site was enclosed by a cofferdam formed of sheet piling with a clay puddle wall up to low-water level. Concrete, faced with granite where necessary, has been largely used in the form of monolithic masses, moulded blocks and columns. Including the caissons, mechanical equipment, buildings, and railway lines, the total cost of the works will not be far short of four and a quarter millions. Valuable as the new docks will be to the Navy, they form only a small proportion of the works executed under the direction of Sir Henry Pilkington by the Admiralty Works Loan Department at various naval stations in all parts of the world.

Professor J. J. Thomson on Electricity.

AT a crowded meeting of the Institution of Electrical Engineers last week, Professor J. J. Thomson gave a lecture on the "Modern Theory of Conduction of Electricity in Metals." The lecturer stated that the experimental evidence in proof of the existence of particles whose mass was only about the seven-hundredth part of the mass of the hydrogen atom was now acknowledged by the scientist to be overwhelming. These particles Professor Thomson calls "corpuscles," borrowing the name which Newton gave to the particles whose motion he imagined to constitute a ray of light. With each corpuscle is associated a quantity of electricity, and electrostatic tubes of force start from it and extend out into space. The existence of the tubes is a question of metaphysics, but it is difficult to imagine that they have not a real physical basis, as they explain and bring into order so many of our sense perceptions. In the modern theory we imagine a solid body to consist of molecules between which exist the ether. A current of electricity in a conductor is due to the movement of corpuscles—with which it must be remembered are associated the Faraday tubes in the ether—between the interstices of the molecules. These corpuscles have been separated from the atoms with which they were previously in combination by the electric force which it is necessary to apply in order to get the current. By utilising the results obtained in the kinetic theory of gases by Rayleigh and Jeans, the lecturer calculated that the average velocity of these corpuscles is 50 miles per second. He showed also how Rubens and Diesselhorst deduced the number of the corpuscles in a cubic centimetre, and proved that the ratio of the thermal to the electric conductivity is independent of the metal. He criticised some of their conclusions, and showed that their theory made the specific heat of metals much too great. He also showed how it could be modified so as to overcome this difficulty. It is known that when a metal is heated the corpuscles begin to leave it and stream away into the surrbunding space. The lecturer concluded that Röntgen radiation was a phenomenon of the same nature as thermal radiation. In our opinion this is the most important lecture that has been given to the Institution of Electrical Engineers since Lord Kelvin's second presidential address in 1889 on "Ether and Electricity." At the end of the meeting Dr. Glazebrook made the interesting announcement that Lord Kelvin had consented to be President for the third time next year.

Petrol in Sewers.

A LETTER published in the *Times* from a Consulting Engineer of the London Sanitary Protection Association draws attention to another danger which has arisen in connexion with the use of motor-cars. In examining the drains of a combined stable and motor-house an explosion occurred owing to a chauffeur having spilled some petrol which had found its way into the drains. From a circular issued by the London County Council it would appear accidents from this cause are becoming more common, and the circular draws attention to the fact that a penalty is imposed by section 10 of the London County Council (General Powers) Act, 1894, upon persons discharging petrol into sewers. As motor-cars increase it is apparent that a very small leakage arising in the many *garages* or private motor-sheds will cause an extremely dangerous condition of affairs in main sewers, liability for which can with difficulty be brought home to any particular individual.

Houses on London Bridges.

THE President of the Institute of Architects, it appears, has been making a suggestion to the representative of a newspaper that, in the event of the rebuilding of Southwark Bridge it should be built, as old London Bridge was, with houses along each side of it. His principal argument is that such a bridge seems to bring the town on each side of the river into a closer connexion, and is less of a separation than an open bridge, as it is crossed in the shelter of the buildings, and forms, viewed from within, only an additional street to traverse. There is no doubt something to be said for this view. On the other hand, it has to be remembered that it puts a much greater weight on the piers of the bridge, and probably must require them to be of larger area than otherwise, involving a greater interference with the waterway. And the difficulty as to the weight on the piers (and on the spans also) is increased by the fact that the Thames Conservancy, whether rightly or wrongly, now require much larger spans and a more unobstructed waterway than was required with the old bridges. The subject is worth considering, however. The proposal that the same treatment should be applied to Blackfriars Bridge would at all events find a use for those enormous and useless granite columns on this bridge, which seem intended to carry corbelled-out towers, but in reality carry nothing.

Society of Painter-Etchers.

THE twenty-fifth annual exhibition of the Society of Painter-Etchers and Engravers, at the Society of Water-colours Gallery, is a very good if not a brilliant one, and we are glad to see that what we call genuine etching—*i.e.*, line etching with the needle (either dry-point or with acid), is in the ascendant, and that there is a much larger proportion of this and much less of what one may call fancy methods of production than there used to be at one time. Among the first of the line etchers who may be noted for special excellence are Mr. R. Goff and M. Béjot, whose names are prominent on the first two pages of the catalogue; M. Béjot's "L'Estacade, Paris" (27), with the broad black barges breaking the nearly untouched surface of the water, is an excellent example; this and his "Jardin des Tuileries" (245) show the value in an etching of broad spaces of untouched paper. Architectural subjects are

treated very well by Miss Minna Bolingbroke, "The Entrance to the Sacristy, Dieppe" (25) especially, with a free touch and a fine sense of texture. Mr. C. J. Watson's "St. Etienne da Mout" (30) is another good architectural etching. Mr. Haig exhibits one of the finest of his highly worked-up cathedral interiors, "South Aisle, Burgos Cathedral" (89); this is splendid and most conscientious work, solid and effective, though we never can feel that this is exactly what the art of etching was intended for; it is more like engraving. Among others that may be picked out from the crowd of many good things are Mr. Hedley Fitton's "London Bridge" (46), in which however the arches look too narrow in their perspective; Mr. W. L. Wyllie's dry-point studies of shipping; Mr. Alfred East's curious but powerful "blottesque" effects on brown paper—but "A Winter's Night" is not night, the sky may be dark enough but the ground and houses are not; Mr. Synge's "Ca de Mosto, Venice" (126); Miss Crawford's "Drummond Castle, Perthshire" (129), with the old keep black against the sky; Mr. Sydney Lee's dry point, "Nightfall" (147), a very poetic composition in long parallel lines; various etchings by Mr. W. Monk; Miss Crawford's "White Horse Close, Canongate, Edinburgh" (236), a powerful and almost tragic etching of a dreary corner of old Edinburgh; and M. Helleu's charming portrait of "Mrs. Ly" (201), the finest of several of the class of dry-point portraits of ladies which are his special type of work.

Society of Arts.

ON Monday evening Mr. Hamilton Jackson gave the first of a series of three lectures on the interesting subject of "Romanesque Ornament." In the first lecture, dealing chiefly with French Romanesque, he traced the connexion of some of the French forms of ornament with the productions of other schools, and especially emphasised the idea that some details of French Romanesque came direct from Syria, and were even worked by oriental carvers in France. There is support but hardly, we think, proof, for this theory. The lecture was illustrated with a remarkable succession of beautiful photographs of French Romanesque work, worth in themselves going to see; but we should suggest a little more condensation in the other lectures. An hour is enough for an audience at a lecture; we had to leave after this one had lasted an hour and twenty minutes, and had not then closed.

The Modern Gallery.

THE Camsix Club (we know not the meaning of its odd title), which is holding an exhibition at the Modern Gallery, appears to be a club of students of landscape effects of the modern sketching school, chiefly in oils. There are some fine bits of effect and composition, as in Mr. Bradford's "Autumn" (1) and Mr. Peile's "Breezy Heights" (56) picturesquely occupied by horses seen against the sky; but there is in many the absence of light and air which are found so often in landscapes of the latest type. "September Sunshine Turning the Chestnuts Gold" (17) for instance, shows no sunlight and no gold; it is in the catalogue but it is not in the picture; and "Down in a meadow where the grasses are a-flowering" suggests nothing but lumps of pigment laid on with a trowel.

The Neglected Architect.

THE daily papers are much interested in the fact that on the occasion of the King's visit to the Old Bailey building on Wednesday two unexpected knighthoods were conferred. It might have been supposed that one of these honours would have been for the architect, who, one would think, had something to do with the building; but they were two members of the legal profession who were selected. There are no knighthoods in France; but in France the architect of the building, on such an occasion, would unquestionably have received some analogous official honour at the hands of the President; probably the cross of the Legion of Honour. In England we know better. The architect is too humble a personage to be considered on the occasion of the opening of the building he has designed.

HENSHAW'S BLIND ASYLUM COMPETITION, MANCHESTER.

BY an odd coincidence, two exhibitions of exceptionally important competition designs have been open to the public during the same week in Salford and Manchester. In the former the drawings were to sixteenth scale, in the latter to eighth; the contrast is so great that special attention should be called to it. The designs drawn to the smaller scale were most convenient for study to all concerned: committee, assessor, and competitors, and the whole of the drawings were displayed in a limited space; whilst those drawn to the larger scale were so unwieldy that half the drawings were piled up in a separate room, and must have given all concerned an enormous amount of unnecessary trouble. If, as a result of this contrast, all future competitions could be limited to the smaller scale a great boon would result to all associated with them.

The competition for new buildings for Henshaw's Blind Asylum is so exceptional in its result that a detailed statement of the preliminaries is necessary to enable readers to appreciate what has occurred. The existing institution provides accommodation for resident blind adults and children, and the Board of Management decided to provide separate buildings for the children. They were enabled to do so by a gift of a site consisting of an old residence and extensive grounds. The difficulties of the competition have been due to the peculiarities of the site. It is approximately square with a frontage of about 330 ft. to a road on the west side. The east and south sides abut on the gardens of adjoining residences, and the north side has at its centre the end of a *cul-de-sac* street which forms the main entrance, with a lodge, to the old residence. The depth of the site from west to east is about 340 ft. At the north-west corner of the site is the old residence, standing back 60 ft. from the street and occupying 120 ft. of the frontage, with extensive outbuildings, conservatories, and stables. The important point about this residence was that in the first instructions issued to competing architects the Board of Management suggested that it should be so altered as to be made available for a school. It was pointed out that it was practically impossible to convert the old building into a school which the Board of Education would approve of.

Revised conditions were therefore issued stating:—"Competing architects have the option as to whether they so include the old buildings (for a school) in their plans or not." In July last the assessor issued, with the approval of the Board of Management, a circular containing the following:—"Whether the competing architects see their way to utilising the present building for school purposes or not, it is NOT (in large type) the intention of the Board that the building should be pulled down at present. It will in all probability be utilised for some other purpose, residential or otherwise."

The competition was limited to Manchester architects. Thirty designs were sent in, and practically all the best men in the city competed. Mr. John Holden, F.R.I.B.A., was appointed assessor, and his award was as follows:—1st premium, 100*l.*, Messrs. C. K. and T. C. Mayor; 2nd, 50*l.*, Mr. H. Lord; 3rd, 25*l.*, Mr. G. H. Willoughby; 4th, commended, Mr. T. Sington.

A prominent feature of the competition was the great variety of treatment of the plans, very few being even approximately similar, due no doubt to the open site. A majority of the competitors ignored the house altogether and provided the whole of the accommodation required in new buildings placed in a variety of ways on the site; most faced the road; some plans faced south to comply with the condition that the principal rooms should have a south aspect.

Turning now to the premiated designs, the one placed first is of marked merit, carefully studied both as to plans and elevations, which are illustrated by an artistically-drawn perspective showing a building in the Italian style, which, if erected, would undoubtedly have been effective and satisfactory. The plan can readily be grasped. Corridors 6 ft. wide enclosed a large area 90 ft. × 80 ft., within which are placed the boys' and girls' dining-rooms, with serving-room and food-lift from the kitchen placed on the top floor as required by the instructions. As these dining-rooms are reached by short cross-corridors, the enclosed area is subdivided into four small courts. On the north side of the corridors is the boys' recreation-room, 90 ft. × 20 ft., with a corresponding room on the south side for girls. The west or main elevation is occupied by the entrance, the main staircase, and administrative rooms. At each end of the two recreation-rooms there is a staircase. Along the back, or east corridor, are the cloak-rooms, lavatories, and other subsidiary rooms, the whole forming a perfectly symmetrical and eminently ingenious plan. Towards the east the corridors are prolonged, so as to enclose a fifth court, beyond which is the school with six class-rooms on the ground floor and six on the first floor. One good idea is a cartway from the end of the *cul-de-sac* street already mentioned, which descends below the corridor, so that conveyances with food could enter the enclosed court and send food supplies by the lift up to the kitchen offices. Over the large recreation-rooms are the dormitories for eighty-five boys and sixty-five girls, with a corridor only along the front. In spite of the undoubted cleverness of these plans, there are several weak points. Schoolrooms placed on two floors are not convenient for blind children, who should have the whole of the rooms on one level. The boys' recreation-room has north light only; in many plans both recreations have south light. Between each dormitory and the main corridor there are four steps, which would be a constant source of danger to blind children. There are, moreover, nearly 700 run feet of corridor on the ground floor, a greater length than in any other plan exhibited, which would in practice be found extremely inconvenient by blind inmates compelled to use them daily. These are some of the points which suggest themselves after careful study of what is undoubtedly a cleverer plan than most others in the exhibition, and which presumably induced the Board of Management, as will be described below, to overrule the assessor's award.

Mr. Lord's plan is also eminently ingenious. It is worked out on lines differing from those adopted by all the other competitors. It resembles in outline the Manchester Technical School. He shows two courts 70 ft. × 33 ft. each, surrounded by corridors, which are consequently well lighted, with a large dining-hall between them, and an alternative scheme with separate dining-rooms for boys and girls. This large joint dining-room, which could on occasions be used for concerts and lectures, and would have a lofty open roof, is probably the feature which has earned the second premium. A most ample and convenient serving-room is shown, a feature very much cramped in the majority of the other

plans, but most important for the smooth daily working of the institution. The school is placed centrally at the back connected with the main building by corridors. The recreation-rooms, 92 ft. 6 in. × 19 ft. 6 in. and 75 ft. × 19ft. 6in., with the dormitories over, are placed right and left of the main entrance. Several of the minor rooms are somewhat cramped, thus a cloak-room, 15 ft. × 8 ft., is scarcely large enough for eighty-five blind boys; the one for girls is also of the same size. The elevations and perspective are fully up to Mr. Lord's high standard. Taken as a whole, the design suggests the work of a thoroughly experienced craftsman, but it has one weak point, which has caused some dissatisfaction among other architects:—The clause of the assessor's circular quoted above has not been adhered to; the old residence is removed, and the new buildings occupy the whole of the frontage to the road. There can be no doubt whatever that that is the proper position for the new buildings, and it would undoubtedly have been adopted by every competitor if the circular sent out by the assessor had not barred the way.

Mr. G. H. Willoughby always sends carefully thought-out plans, and those which have been awarded the third premium are the most compact in the room, and well merit their position. They differ from those already referred to, in which the dormitories have two rows of beds, by having four rows; this allows a broader room of less length to be planned for the dormitories, with ample cross ventilation, and a better-proportioned room below for recreation purposes, which can be subdivided by a low central partition into two 18 ft. sections, as the managers find it convenient to subdivide the children into separate groups when they are in the recreation-rooms. Several other competitors have also adopted the four-bed dormitory arrangement. There are no rules on the point among those issued by the Board of Education for the blind, but in the *Journal* of the R.I.B.A., 1901, page 183, it is stated that the Local Government Board for some years have refused to sanction such wards. The corridors have not the ample direct side light shown by some other competitors, but are nevertheless sufficiently well lighted. The elevations are illustrated by an exceptionally clever perspective.

So much for the premiated designs. We now turn to that submitted by Messrs. Mangnall and Littlewood. The Board of Management, in accordance with the following clause in the conditions, has placed the assessor's award aside, and has selected this design for erection. It states:—"They (the Committee) reserve to themselves the right after consideration of the assessor's report of deciding which design shall be accepted." The decision has been ratified by a meeting of trustees and subscribers. Obviously, Messrs. Mayor feel aggrieved, but the decision forms a *force majeure* against which there is no appeal. A considerable number of persons visited the exhibition, and it would appear that the majority approved of the decision. It was determined mainly no doubt by the mode of combining the old residence with the new building, and by the economical use of the site, the main portion of which is left open for playgrounds.

Messrs. Mangnall and Littlewood take down the conservatories between the old house and the road, and place their new buildings along the whole of the frontage, thus making the house into a back wing at the north end, and they build a south back wing to balance it. Their plan represents the section of a channel iron ⌊⎽⌋ These back wings contain the cloak-rooms, lavatories, music, and other subsidiary rooms. The school-rooms are all on the ground floor centrally at the back. The ground floor corridors have rooms only on one side, and are thus the best light of all exhibited; there are practically no corridors at all on the first floor; it is this minimum provision of corridors, which makes the plan so exceptionally well suited for blind inmates.

There are no small enclosed courts. In the centre is a T-shaped administrative block, 35 ft. wide in front, and 69 ft. behind, rght and left from which extend the boys' and girls' corridors, about 123 ft. long each, alongside which are the recreation and dining-rooms, 81 ft. × 20 ft. 6 in. and 38 ft. × 20 ft. 6 in. for boys, and 72 ft. 6 in. × 20 ft. 6 in. and 30 ft. × 20 ft. 6 in. for girls; at the extreme ends are the two reading-rooms, each 20 ft. 6 in. × 16 ft. The old house, 40 ft. × 70 ft., projects, as stated, at the end backwards, and is completely screened from the road. The dormitories are over the recreation-rooms, without corridors alongside, and thus have perfect cross-ventilation. The elevations are Gothic in character, illustrated by a clever perspective. The heights of the floors range with those of the old building, and are consequently rather low, considering the size of some of the rooms. As it will probably cost almost as much to alter the house as to rebuild it, the point suggests itself whether the Board of Management are well advised in controlling the height of new buildings by that of an old one, and in hampering the competition generally by making the retention of the old building a *sine quâ non*, instead of giving competitors a free hand from the commencement. Their object is economy, but it is doubtful whether any will result.

Mr. A. Steinthal's plan shows the house utilised for school purposes, but as the class-rooms are arranged on three floors, in spite of great ingenuity, his scheme is at a disadvantage compared with plans showing the class rooms all on one level. Great labour has been bestowed on the elevations, which are most carefully drawn and well designed.

Messrs. Brown and Dutch are outclassed; their dining-rooms have neither serving-rooms nor conveniently-placed food-lifts.

Mr. H. Chadwick has submitted an extraordinary plan. He has placed his main lift on the ground floor in the centre portion of the building, which on the first floor becomes detached, a sort of island, so that the lift does not give access to main portions of the first floor, which form a group of entirely separated sections. The elevation is exceptionally clever; it shows a well-designed Italian building with projecting wings, angle turrets, and a large two-storied porch, but with a radically defective plan the best elevation is useless.

Messrs. Ch. Heathcote & Son show two small areas, 11 ft. × 14 ft., in the centre of a large block of buildings. As the site is several times larger than the building, with unlimited light, such contrivances indicate want of experience in the planning of large buildings; no other plan exhibited is so badly lighted. The dining-rooms are on one side of the corridor, with the serving-rooms and food-lifts on the other, a fault which suggests that they are outclassed. The cloak-rooms have no direct light, and the main staircase is disproportionately large for the building. The school is a detached building at the back, reached by two passages each with two bends. Taken as a whole, these plans could under no conditions have had the remotest chance of obtaining a premium. Supervision of the dormitories is also defective.

Mr. J. Lindsay Grant cannot be congratulated on his plan. His recreation-rooms have three recessed bays each, a most awkward arrangement for blind children. There are several L-shaped rooms on the ground floor. Messrs. Royle and Bennett show a central corridor lighted at the ends, and a detached school reached by a corridor from the girls' side only; the boys have no direct access to the schools at all. The food-lift is placed about 40 ft. from one of the dining-rooms. Messrs. Sykes and Evans sent an extremely original and carefully-worked-out plan, well lighted, and convenient throughout. The whole of the buildings, including the school, were shown grouped round a large court; on the first floor the dormitories are placed over the class-rooms; one of the dormitories has only north light.

Messrs. Bird and Mattinson competed with a practical and carefully-thought-out plan, with a well-lighted corridor 270 ft. long, having the recreation-rooms along it on either side of the main entrance and the dining-rooms at right angles to it. The buildings are placed to face south; the design is notable for its perspective, which suggests an old and experienced hand, and would be well to the front in the competition.

Messrs. J. & J. Swarbrick show exceptionally long recreation-rooms, 106 ft. × 18 ft., jutting out from the main building, which cause some waste of the site, and curtail the playgrounds. The school is at an angle with the main building, entirely detached, without any connecting corridor; in an alternative plan the school is placed in the front; no other competitor has attempted to do so. A good deal of time and study has been spent on this design, but the site is too much cut up for success. Mr. A. T. Greenwood has an extremely compact plan, which covers, however, the whole of the central portion of the site, and leaves comparatively small playgrounds.

Messrs. Woodhouse, Corbett, & Dean send a plan differing from all others, very highly coloured. The school and buildings form one compact block 230 ft. long, with a central narrow and extremely long area 170 ft. × 18 ft.; the central corridor is scarcely sufficiently well lighted. There are ten classrooms in a row, with a corridor on each side; it is doubtful whether they are sufficiently well-lighted from above. The perspective is effective, but it is doubtful whether the plan would appeal to either assessor or committee.

Messrs. Parker & Langham are unfortunately outclassed. They show L-shaped recreation-rooms, and a dark central corridor.

Mr. C. Swain must have been a dangerous competitor, and may have been within reach of a premium. His main corridor is well lighted, the staircases are well-placed, and the whole plan suggests careful study and experience; the only weak point is a single corridor to the schools for both boys and girls, but that could easily be modified. The perspective is also amongst the best in the room. Mr. E. W. Leeson is one of the few competitors who has provided really large and convenient dining-rooms; in many of the other plans they are too small; his main corridor is also well lighted. The approach to the school is by double corridors. The perspective is in outline only without shading, and shows an Italian building which would have been a desirable addition to the local public buildings.

Another design by Messrs. Woodhouse, Corbett, & Dean is more successful than the one mentioned above. Messrs. Shaw & Vowles send a plan remarkably similar to the one which gained the third premium, the one flaw being L-shaped recreation-rooms; they are among the competitors who have planned well-lighted corridors. Mr. H. France sent such an excellent set of drawings to Preston some time ago that his plans in this competition are disappointing; the buildings face south, and make the playgrounds rather cramped. Messrs. Barker, Ellis, & Jones show recreation-rooms 90 ft. × 14 ft. 6 in., not a desirable proportion; the dining-rooms have neither serving-rooms nor food-lifts. The firm is a very old one, and should have done better.

Mr. J. B. Broadbent has adopted the old house for the school, with an alternative site for it at the back. Some of the large rooms are L-shaped, but otherwise the plan is among the best. The elevation shows a central tower and a series of gables. Mr. A. T. Greenwood has a central corridor without light, projecting wings forming the recreation-rooms, and a school behind, approached by a single corridor. All the best plans have double corridors. Mr. J. B. Langley has submitted an exceptionally well-designed elevation and perspective. The plan has several original features; the dining, recreation and reading rooms form wings, 96 ft. × 60 ft. right and left for boys and girls, placed at an angle to the centre. Messrs. Maxwell & Tuke send a plan based on a corridor, forming an octagon, with radiating-rooms, very clever, but not suitable for the purpose of the building.

PORTSMOUTH DOCKYARD.—We lately adverted to the fact, which is commonly overlooked, that as contrasted with iron steam vessels, their modern successors, our wooden sailing ships presented many features of skilled carpentry and of ornamental and constructive design, more especially in the bows and in the quarter and stern. The stern of an XVIIIth century line-of-battle ship was a very imposing piece of work, and at night-time, lighted with lanterns, formed a pretty spectacle. We are, therefore, pleased to learn that the old fitting-loft in Portsmouth Dockyard has been converted into a museum, or reliquary, of the figure-heads and similar interesting objects that hitherto lay neglected and scattered about the yard, together with specimens of stern ornaments and other characteristic features of our men-of war in the past.

ROYAL ACADEMY LECTURES.

AT the Royal Academy on Thursday in last week, Mr. R. T. Blomfield, A.R.A. (Professor of Architecture in the Royal Academy), delivered the first of four lectures to the students. He said that he proposed to offer a few suggestions as to the point of view from which they should undertake the study of architecture. Architecture was a difficult art, and while it did not require the skill of hand necessary for the sculptor it demanded great power of observation and a faculty of sheer hard thinking. Not only had the architect to study forms of expression like the painter and the sculptor, but he had to master the practical difficulties of his problem. While he was limited in the sense that certain forms of architecture were fixed once and for all, he had also to realise to the utmost the full logical intention of those forms—their controlling influence in every part of his structure. In other words, there was no such thing as impressionism in architecture. It was an art which required the most searching study. Not only must they familiarise themselves with the methods of architectural expression, but understand their meaning in all its bearings and consider how they could be of real use in their own designs. They must master the technique of their art for themselves, and this could not be done without incessant labour. They had to serve a laborious apprenticeship and learn by observation and analysis what were the resources of the architect and how and when they were to use them. The first point to be dealt with was the feeling in which they approached the study of architecture and set out to perfect themselves as practical architects, and he would warn them to guard themselves against irrelevant sentiment. Their concern would be with buildings, and although there were many buildings which had an historical or scientific interest, yet they might have no relation to the study of architecture. It was their interest to avoid waste of time on matters of no architectural interest; their immediate concern was with beautiful buildings and the means by which that beauty was obtained. The student must concentrate his attention on the actual building, and endeavour to understand the meaning of the architecture he saw and how the effects he admired were obtained. There would always be an element of mystery in great buildings which could only be felt, but they must try as far as they could to understand the meaning and intention of these buildings. There was a meaning in all architecture, and it was this they had to study. The first step was to clear their mind of what was irrelevant and study the intention of the architect from his point of view rather than their own, for criticism, to be of value, must be sympathetic. For example, in Gothic architecture as a rule the structure was very frankly expressed, but they need not be unduly critical if the result was sometimes crude, since the mediæval builders were less occupied with form than with the direct solution of constructive problems. On the other hand, men of the Renaissance period approached the problem from a different point of view. They were occupied with larger considerations of form, and were not concerned to make the expression of construction their only object. It was hard criticism to censure these men for not doing certain things, for criticism which was based on an intention which never existed in the designer's mind was meaningless. Their business as students was to deal with buildings on their merit. The one condition of all good building was that the building was structurally sound and answered the purpose for which it was built. Under the conditions in which they lived it was of considerable importance that they should approach the study of architecture with an open mind and without preconceived ideas of the superiority of one style of architecture over another, and, above all things, without any inclination to find moral or religious sanction for the design which appealed to them. They must be on their guard when the writers talked of corrupt and decadent styles. The observant student would find something to admire in work which was condemned as decadent; for instance, in XVIIth century work in Italy, and the same thing applied to all the styles practised since the earliest days of civilisation. A sympathetic mind was the first condition to the profitable study of architecture. He had one more warning to add. It was natural, and perhaps inevitable for enthusiasm to violently identify itself with one school of thought and expression to the exclusion of all others. Some forty or fifty years ago the young men were violent in their devotion to Gothic architecture, and of recent years they had seen a somewhat analogous state of feeling in the arts of painting and sculpture. He would call their attention to the danger there was in throwing themselves neck and crop into one boat before they had any idea of where the boat was going or what other navigators had sailed the seas before. They must acquire some knowledge of the history of their own art before they were in a position to indulge their criticism. Two hundred years ago there were not these difficulties. The student knew exactly what he had to do, and the architect had no sort of doubt as to the manner of his design. Wren had no hesitation as to formal methods of expression. Now the position was somewhat bewildering, but they must face it with a clear head. He would assume that they would go to their studies without preconceptions, and he assumed that they had to some extent qualified themselves in the general knowledge of their art and acquainted themselves with the history of architecture, showing how one style grew out of another. The greater their knowledge of history the keener was their sense of the continuity of architecture, and the more clearly intelligible would the buildings they studied become. In this connexion he referred them to the lectures given last year by Mr. Jackson dealing with "Reason in Architecture." But, after all, reading did not make the architect, and the real study must always be buildings. As the sculptor studied his model, so must the student of architecture apply himself to the study of building and saturate himself with what had actually been done, not with the idea of imitation, but in order to perfect himself and acquire the power of architectural expression. It was one of the great advantages of their art that it could be studied anywhere except in the wilderness. Churches, old farmhouses, and citizens' houses were to be found in almost every part of England, while in London they could find examples of every phase of architecture of the last 700 years. Therefore they had their material, and the next thing to consider was how they should deal with it. Their object was to get at some practical understanding of architecture, and they could only get this by using their brains. There was a natural temptation to rush at the first piece of ornament which struck their attention and immortalise it in their sketch-books. It was attractive, but it was not business, and there were other things to be done before they did this. They had to arrive at the plan and instruction of the building by systematic analysis. The results might not be much in the way of sketches, but priceless as a training in architectural thought. They had the original notes of Inigo Jones preserved, and there was no question of his powers as a draughtsman; yet, to the best of his recollection, in his notes of his Italian travels there were few drawings, and the notes were mainly reflections in writing on the construction of buildings taken in Rome and elsewhere. What they were to aim at were methods of study and analysis, and skill in draughtsmanship should be subordinated to this. He recommended an analytical study of the interiors of Wren's churches as an excellent training in architectural form. Let them take St. Paul's Cathedral. The first impression would be of a vast building on an intricate plan. To understand it they must set to work methodically to analyse it. Wren had to provide a church to take in 10,000 people, and the point to which their study in analysis could be directed was the manner in which he covered a space 500 ft. long and 245 ft. wide. The materials at his disposal were wood and brick and stone, and he had no short cuts in the way of steel, as now; but, nevertheless, he carried out the building. When they had mastered the general conception the next step was to carry it out in detail, and they came last to the ornaments, but not until they were enabled to study the ornament in relation to the whole composition. There were many points of view from which a building had to be studied before its whole intention could be grasped, and his object had been rather to call their attention to that study of architectural form which was to them what the study of anatomy, for example, was to the sculptor. But this was not the only study necessary. Architecture stood on rather a different footing to other arts, inasmuch as its development was largely determined by considerations accidental to art itself. The plan of the Western Christian church had grown out of the basilica, but the connexion between the two from the point of view of architecture was accidental. Then, again, there was the effect of Wren's personal temperament on the design of St. Paul's, for architecture responded to the individual impulse as readily as any of the plastic arts. Into that aspect of architecture he could not now go, but it formed a delightful and fascinating study. For their immediate purpose he preferred to dwell on that first necessity for architectural study, that the student should endeavour to systematically analyse the intention of the building he was studying, and always endeavour to deepen and strengthen his power of architectural thought. As they continued their studies temperament would play a more and more important part. Certain qualities of architecture would appeal to them more than others, and if they were artists they would insensibly form their own personal idea of design; but from the first they should learn to study buildings on their merits, and bring an unbiassed mind to bear on good work in whatever style they found it. In this way only could they arrive at the attainment of their end and gain a personal expression in their art.

Design and Temperament.

On Monday Professor Blomfield delivered the second of his lectures, the subject being "Design and Temperament." He said that in his first lecture he had endeavoured to put before them the point of view from which they should approach the study of architecture, and urged them to free themselves from prejudices and preconceptions and be prepared to find good architecture in different forms without concerning themselves whether it accorded with the fashion mode of the time. He had endeavoured to impress on them the necessity of analysing the buildings they studied, and working them out into abstract elements, and searching for the principles of design and construction in order clearly to understand what the architect set out to do, and what the problems were with which they in their turn would have to deal in actual practice. This, however, by no means completed the critical study of buildings, for there was the other side of the case—the right appreciation of the artist himself whose work they were studying. It was ungrateful not to attempt to discharge that debt, but apart from that it was only by this wider study of architecture in all its varied bearings that they could understand how great and vital an art it was. It was a mistake to dwell exclusively on the technical side of architecture. That had to be mastered, but architecture was something greater and more profound than merely technical excellence. Although its appeal was more abstract and less readily understood than those of the other arts, it was like them in the last resort addressed to the emotions. Temperament not less than imagination was an essential element in all good architecture, and by temperament he meant some force and passion within a man which drove him out to do certain things in a different way to any others. Architecture was one of the greatest of the arts, and if it was to justify its place amongst the arts it meant the translation of human wants into visible forms of beauty. If they considered the life and work of typical architects they would see that design and temperament were intimately connected. In many cases, however, the absence of knowledge of the architect prevented full understanding of his work. One could only read back from the work to the man, and here they were met by certain historical limitations, for a sympathetic study of individual work was scarcely possible before the days of the Renaissance. The monuments of Egypt were instinct with character, but it was not individual character; they were the expression of a relentless power working with millions of slaves. Such buildings had their lesson for the student, but he would search in vain amongst them for any trace of that individual-

ity which was one of the chief differentiations between ancient and modern art. Neither would the student find it in the architecture of Greece. The architect was regarded with singular contempt by the Greeks in so far, as it has been said, as he fell short of a gentlemanly leisure. The Romans inherited this feeling and carried it on, and it was not until a new vitality was brought from the East that they had that individualism which was to bring about such tremendous developments in architecture, for example, St. Sophia. Their own conditions of life were so remote from those of Justinian that they could not read backward from the building to the men who designed it. When that splendid civilisation of Byzantium died, there was a throw-back in the West to a state of things not far removed from barbarism. The early mediæval architecture grew up by collective effort rather than individual, and they knew little of the men who did the work, but whereas the architecture of the ancients—perhaps he should say the archaic world—was hieratic, in the Middle Ages they found individuality steadily making its way to the front; yet it was not until the Renaissance that the material for what one might call the physiological study of architecture—the interpretation of the architect's work by his personal temperament—was available. He would take Alberti as an example. Alberti was born of a noble Florentine family, and was a gentleman, a scholar, a man of admirable accomplishment, both mental and physical, one who found something to delight in in every condition of life. The result of this combination of qualities was traceable in his architecture. There were two sides to his character—the austere reserve of the scholar and the fastidiousness of the fine gentleman, on the one hand; and on the other the adventurous instincts of the sportsman. The Renaissance in its first inspiration was a movement of scholarship, but so far as architecture was concerned it began at the wrong end, in regard to the fact that it worked deductively from such writers as Vitruvius, instead of inductively from the facts of construction, and in the first instance Alberti approached architecture from the point of view of the scholar, and his enthusiasm for the antique led him into difficulties from which a more intimate study of architecture would have saved him. But the instincts of the adventurer were not less strong than those of the scholar, and the fact that he attacked the problems of construction was characteristic of a man who was determined to go beyond the beaten track. His distinction of mind was visible in his architecture. It was not always pleasant, but it was a serious attempt at individual expression, and the qualities he aimed at were not to be mistaken in his work. Let them take the Church of S. Francesco at Rimini. It was a Gothic building of brick, highly unsatisfactory to that fierce mixture of humanist and war-wolf Malatesta, who found his man in Alberti. Alberti transformed it into the Roman manner, and filled the inside with marbles and sculpture and heathen gods. Few buildings were more characteristic of earlier Renaissance—it was an attempt to translate modern thought into terms of Paganism, and seemed to a certain extent that this was always at the back of Alberti's mind. So, too, with St. Andrea, at Mantua, which, although much altered, was still one of the finest churches of the Renaissance. The church in its present state was by no means as Alberti designed it, but it was characteristic of the man. In Alberti, then, they were brought face to face with a new type. In Greek and Roman civilisation the architect was an inferior, little more than a servant; in mediæval days he was lost in the crowd; but in Alberti for the first time they came across a man of high position and high education who devoted himself to architecture for the simple love of art, and who was able to show in his own work the quality of reserve and personal feeling and contempt for trivialities which marked him out amongst men. To estimate the value of his work it was important to bear in mind what was being done by other men at the same time. While they were occupied with detail, Alberti, alone almost amongst the men of his time, was thinking in terms of architecture and endeavouring to give to architecture its own peculiar qualities, and making an appeal by form and refinement, and, above all, beauty of scale. More than that, he saw life whole, as compared with the type of the professional gladiator whose whole life is given over to professional success. He would call their attention to another man of the Renaissance. Peruzzi, as was the case with Alberti, was drawn into architecture accidentally. He worked for a time in a goldsmith's shop, and settled down to the study of painting at an early age, and speedily obtained employment in the decoration of buildings. But the true artist of the Renaissance never rested, and each fresh attainment was merely a stepping-stone to future efforts. He devoted himself to the study of perspective and the antiquities of Rome, and then almost drifted, as it were, into the practice of architecture. It was evident from his work that he had carried his researches into antiquity to a much more intimate point than any of his contemporaries, but few things were more surprising in his work than the way in which he arrived at a refinement of detail and a selection of form which had more of the true Greek spirit than the revivalists of 100 years ago, and in this regard Peruzzi stood almost alone amongst the architects of the Renaissance. He alone saw the possibilities of Greek detail under the brilliant sky of Italy. Peruzzi dealt with the traditional forms of Classic architecture with the competent freedom of the master, and they found this not only in details, but in his whole attitude to architecture. Detail to him was a means to an end—that of driving home the central idea of his building. The work and lives of both Alberti and Peruzzi showed how intimately connected were the artist and his temperament. It was refreshing to turn back now and again to the time when art for art's sake meant something very different from what it meant in recent days; to the time when a man of great ability and position like Alberti found in architecture the work of his life, and an artist of the ability of Peruzzi ignored the onus of fortune in his pursuit of the least popular of the arts. He had selected them as types of the artist whose aim was steadily to consider the finer qualities of life. It was their privilege as artists to follow them in this, and, in whatever circumstances they found themselves, to watch and see that they realised the finer and rarer qualities of life—to play the part of the interpreter, and even it might be the seer. It was the function of the tradesman to satisfy the fashion, but it was their business as artists to see farther ahead and disentangle the permanent interest ever in their small corner of existence, and endeavour to render it vital for all kindred spirits.

THE ARCHITECTURAL ASSOCIATION.

THE usual fortnightly meeting of the Architectural Association was held on Friday last week at the Tufton-street premises, Mr. A. Needham Wilson, Vice-President, in the chair.

The minutes of last meeting were read and confirmed, and the following gentlemen were elected as members, *i.e.*, Messrs. A. Kay and H. P. Brentnall, both of London.

The Late Mr. Maryon Watson.

The Chairman said that, before proceeding to the other business, he had a melancholy duty to perform. As they all knew, the Association was mourning the loss of one who had taken the greatest interest in its welfare, *i.e.*, the late Mr. A. Maryon Watson, who died very suddenly after a very short and painful illness, and they were all mourning his loss. One or two brief incidents of his career might be of interest. His age was 35 years, and his illness was the result of overwork upon a too-sensitive nature, and his death made a void in the ranks of the younger men of attainment and high promises in the profession to which he devoted his talents. He was an Associate of the Royal Institute of British Architects; Hon. Secretary of the Literature Standing Committee; member of the Council of the Architectural Association; sometime student of the Royal Academy of Arts; first silver medallist, R.A., 1897 (measured drawings of the Library of Lambeth Palace); Institute medallist, Essays, R.I.B.A., 1901; holder of the Certificate of Competency from the Statutory Board of Examiners under the London Building Act, 1894; and for four years Lecturer on the History of Architecture at the Architectural Association—1902-1906. He entered his father's office as a pupil in 1892; visited Sicily in 1892, Lincoln in 1894, Winchester in 1897, Rome in 1899, Florence in 1900, and then, for a year, by the kindness of Sir Aston Webb, R.A., he had the privilege of attending at Queen Anne's-gate, where he had the opportunity of working upon the drawings of the Britannia Royal Naval College, Dartmouth, and of the Royal College of Science, South Kensington. In May, 1901, he entered into partnership with his father, wherein he continued until his death. He was author of "Notes on the Life, Work, and Influence of Sir Christopher Wren"; "The Comparative Desirability of the Formal or Irregular Treatment of Street Architecture in Large Cities"; various papers and reviews in the *Builder*, and the professional journals of the Royal Institute of British Architects and of the Architectural Association; and an article on "The New Fire Protection for London," contributed to the "Nineteenth Century and After," published in April, 1905. His pleasing motto was: "Laborare est orare." They could not help greatly deploring the loss of one who took such an interest in the work of the Association; but that work must be continued, and the loss must be filled up. Yet it would be a long time before they forgot him. It was his duty to propose that the Association should offer a vote of condolence to those who were bereaved by his untimely death, particularly his widow and father.

The motion was carried in silence.

Announcements.

The Chairman announced that, in consequence of the death of Mr. Watson, a vacancy had been created on the Council, and notice of nominations to fill the vacancy would be proposed at the next meeting.

Mr. C. Wontner Smith, Hon. Secretary, announced a meeting of the Discussion Section on March 6, when Mr. F. J. Osborne Smith will read a paper on "Sewage Disposal."

He also announced the Architectural Association smoking concert on Friday, the 1st inst.

Some Aspects of Training and Design.

Mr. Gerald C. Horsley then read the following paper, entitled "Some Aspects of Training and Design":—

"Our President and Gentlemen,—Some time ago a well-known writer stated at a conference of teachers that his contempt for modern education was only exceeded by his contempt for men who gave up their lives to teaching, and for those—a feebler sort in his opinion—who talked about education. His sympathies were wholly with men who went forth and did things.

The speaker, perhaps, reserved his admiration for what we call the "self-made man," and we may guess that he would, had he been addressing architects on the subject of their education, have advised them to go forth and learn their work by building. He might have said, "You shall know architects by their works, and you shall learn by their works." The advice, if profound, is primitive; it accords better with the events of an earlier day, when architecture was in a more experimental state than our knowledge allows at the present time. It is perfectly good advice for experts, but hardly for men whose feet are crossing the threshold of the workshop of art. These men know—even the genius among them conscious of his gifts knows—that they must learn their work in other ways as well as by the experience gained in actual practice. It is because I believe that there is both room and need for a larger measure of preliminary training before building is undertaken than the student of architecture generally allows himself, that I venture to say anything to you to-night.

Notwithstanding the opinion of the writer I have quoted at the beginning of my paper, you will agree, I believe, with me in thinking that we architects at any rate would not be justified in having any feeling of contempt either for our architectural training, however much we may hope to see some things changed in it, or for the professors and teachers in our architectural schools. We

know too well the good work which is being done in the face of many difficulties. Nor can we feel contempt for those who meet together to discuss methods of training, seeing that training and education are necessary in every art, and as long as progress lasts, the final word on these subjects can never be said.

You may regard the subject of architectural training from different standpoints; I will only attempt to-night to dwell upon the effect of certain forms of training upon design.

Before making any suggestion as to what may be weak spots in our training, let me briefly refer to a few of its advantages and opportunities, particularly as the student of to-day can hardly realise the value of his inheritance in means of study, compared with the opportunities which would have been open to him fifteen or twenty years ago. We may first notice the recent addition to these means in the excellent and valuable scheme of co-ordination of the principal architectural schools in the country, drawn up by the Board of Architectural Education; a scheme which has been cordially accepted by our profession, and which is working well. The different schools, which I may remind you are our Architectural Association Schools, the schools of University College, King's College, and Liverpool University, are doing useful work in training. The scheme, however, is of too recent an origin for us to have a clear-cut idea of its ultimate effect upon English architecture. We believe it to be founded upon right lines, and that the result of its working will accordingly be successful as far as it goes.

In addition to the schools under the scheme are the schools at South Kensington, Manchester, Birmingham, etc., where the work done is very similar, and there are many technical and County Council schools which nearly all have classes intended for the study of architecture, as well as for teaching the methods of trades and crafts found in the building. These craft classes are not utilised at present by students of architecture to any extent, owing chiefly to the fact that the influence of the trade unions is at present unfortunately against the admission of anybody but members of the unions into the classes for the study of the building crafts. It has long been recognised that it would be an advantage to young architects to join these trade classes in order to obtain practical knowledge, and if by their doing so they do not keep out the workmen for whom the classes were originally founded, it is difficult to see that anything but good could come out of such an arrangement. Indeed, some years ago, the committee of this Association endeavoured to secure this advantage at a technical school near to the then headquarters of the Association in Great Marlborough-street, but the influence I have referred to was too strong, and prevented the scheme from being carried out. The attitude of the trade unions to training and workmanship has an important bearing upon architecture which deserves a paper to itself. I have not time to enter fully into it here.

To return to the scheme of the Board of Architectural Education, the principal departure from the procedure of the past is the establishment of the two years' preparatory course before the student is articled to an architect.

In the past the student was articled without any preliminary training—a good beginning for those who were fortunate in finding a good master. There were, indeed, classes in London at the Association, University and King's Colleges, and the good instruction given by the Royal Academy of Arts, but all these were evening classes. There were no day classes, except those for drawing in art schools connected with South Kensington.

We may, therefore, roughly say that the students' early architectural education depended upon the office in which he was. In a good office he would get varied experience, both artistic and practical; in a bad office he might have a similar experience to a case which I once came across in a large Midland town, where a pupil of ability had been allowed during a period of three years to do nothing but some indifferent tracings.

In spite of drawbacks of this kind, apprenticeship is universally believed to be the bedrock of any good system of architectural training, and the Board of Architectural Education very wisely retains this system, but adds to it the preliminary two years' course in the school. Given that, the pupil has made a wise choice of his office and master, apprenticeship secures many advantages, chief among which is the influence derived from tradition. This influence emanates from the master, and has been transmitted to him, in part, at least, from his master.

In addition to that, there is the stimulating effect of close companionship and common interest, which may prove to be an inspiring force to the beginner.

During the term of apprenticeship the Board advises a continuance of the school course, and the theoretical knowledge acquired in the school, combined with the practical knowledge acquired in the office, ought to build firmly the foundations of power to design.

Further, the syllabus of the Board advocates the study of ancient buildings, which was so great and so essential a feature in the training of enthusiastic students five-and-twenty and more years ago, and which it is to be hoped no newer teaching organisation in the future will ever attempt to discourage. We may rival, but we can hardly surpass, the enthusiasm and devotion with which the students of this earlier period measured and drew old work, and no architect will deny that this study must take a leading position in a student's training. Unfortunately, with the growth of easy photography, some modern students appear to think that to spend valuable time in carefully taking photographs of a building is as good as sketching and measuring it. Never was a greater mistake made; it is impossible to find out the secret of the beauty of an old building without measuring and drawing it, and the sooner the 2-ft. rule and drawing-block take the place of the camera on these occasions, the better will be the study of architecture.

One other advantage the student of to-day inherits, viz., the result of the victories in the warfare of many years past against merely paper and T-square architecture, and the threatened extinction of the arts and crafts which are part of building. The work and influence of many artists in the last century, and of societies like the Art Workers' Guild, have helped to open the office doors and bring the student face to face with the materials with which he must build.

The inner spirit of the Gothic revival of the middle of the last century led to the more general study of buildings and of the men who made them, and this great movement can place the recognition of the craftsman and the crafts to its credit.

But to return to the system of training advised by the Board; if loyally followed it should go a long way to ensure a thorough training of architects, and thus bring about the extinction of the bad office and the creation of the good. It is to be noticed, however, that the Board concludes its report with the following words:—"In putting forward the syllabus the Board desires to point out that its object is to lay a sound foundation on which the student can continue his training in later years. The Board cannot contemplate the complete equipment of an architect as possible in a four-years' course. Its object is to start the student on those lines of study which will best enable him to attain to some proficiency in the art and practice of architecture."

In other words, after the four-years' nursing, the student is to shift for himself; the Board, at any rate at present, can "only start the student on lines of study." It makes no attempt to suggest his course through later years. With the British instinct for independent action, the fabric of instruction is to be carefully supervised as regards its foundations and basement story, but the superstructure is to be designed and constructed entirely by the novice.

Hence we shall see our students taking different paths as their means and situations in life may dictate, after the four-years' course is over; naturally, few of them will attempt to practice; the majority will seek for further experience in becoming assistants or improvers, or in entering builders' workshops, or as assistant clerks of works.

In conjunction with any of these developments, some will enter the Royal Academy schools, others will take up a course of work to pass the Final examination at the Royal Institute of British Architects; some will travel in order to measure and draw, or work at designs which may win for them studentships or prizes. All this, good and useful work as it may be, is nevertheless disconnected and piecemeal in character; there is no cohesion in it as in the days of the four-years' course, unless we find it in the schools of the Royal Academy.

If we agree, as I presume we do, that the supreme object of our training is to create ideals and aspirations, and foster the growth of ideas in the minds of students so that the end or goal of their career will be a fine architecture, it seems unfortunate that the Board should lose touch with them just at a time when these aspirations and ideals are taking shape, and ideas beginning to flourish. We must surmise that it is the purpose of the Board to extend the scope of its recommendations as time goes on.

In the meantime, as nothing comprehensive really holds the field, we are at liberty if we wish to constuct theories for ourselves.

As matters stand, the four-years' course is a thorough school course, and it is a question whether the subsequent freedom of action is not the chief fault in our training of which we should take note, and if is not responsible for some of those weaknesses in design which we would prefer not to see in any of our students' advanced competitions.

If we believe a further course called for, it would have to be of a distinctly advanced character; the influences in it would have to be, above all, artistic and constant association with students of other arts, such as painting, sculpture, etc., would be necessary. This course would make a special point of teaching composition.

Such a scheme presupposes the existence of a great college of art—a university of the fine arts—and it is significant that the nearest approach to such a university that we have in England is contained in the schools of the Royal Academy. This is because the architectural school there (as in the better attended schools of painting and of sculpture) is adapted for the advanced student and not for the beginner. We can conceive that if the admirable system of instruction which obtains there for architects were widened and extended, and connexion established with the schools of other bodies, we would have such a university of the fine arts.

If we look ahead, we see in Paris, in the senior classes of the Ecole des Beaux-Arts, an institution of this kind. It is the ambition of young architects in Paris who have passed through some years of preliminary training to enter these classes, and I propose very briefly to describe a little of what they do there; not because I suggest that we should copy all that they do, but because we may learn something from their methods.

I have some drawings, very kindly lent to me to-night by Mr. Phené Spiers, which will show you the kind of work a student is expected to do in the earlier part of his training at the Ecole des Beaux-Arts, for Mr. Spiers is one of a small number of Englishmen who, for a time, were students at the Beaux-Arts.

Mr. Spiers' drawings are the more interesting as he was studying in Paris at a time when the work of French architects was deservedly greatly admired by English architects; and as we cannot traverse the whole course of modern French architectural art, I have a few illustrations of work done by some of these French architects which I do not believe could have been executed without the fine training they had received at the Beaux-Arts. These works were carried out in the first three-quarters of the last century, and have stood the test of time, and are admitted to be of a fine and noble character. I regret that I have not been able to get together a larger number of photographs to illustrate these works, or a larger number of plans, a form of design in which the French architect greatly distinguishes himself. In passing, I may say that a study of the plans, to take only one accessible book in our libraries, "L'Architecture Privée," by César Daly, makes clear the care exercised in their design, and their thorough artistic character.

I have also a few slides in the lantern which will illustrate some of the work done

by French students in competition for the Grand Prix de Rome, after they have finished their course at the Ecole des Beaux-Arts.

Before showing you these illustrations (and I think I had better wait to show them at the end of my paper), may I enumerate the principles which we endeavour to impart in our training, and you will then be able to judge how very well they are exemplified in the work of these French architects.

At the risk of bad definition, and the omission of something of importance, I may state them thus :—

To instruct the student—

(1) In methods of building;
(2) In knowledge of construction, and in the principle that good design must be founded upon good construction;
(3) That any decoration of any kind forming part of a design must be in sympathy with, and subordinate to, the larger lines of the architectural scheme;
(4) That simplicity, breadth of treatment, fine proportion, and scale must exist in a good design, and form the basis of style.

We find these principles animating such men as Duban, Vaudoyer, Labrouste, and Duc eighty years ago. They were winners of the Grand Prix de Rome in successive years from about 1820. They were the founders of the great school of French architecture of the middle of the last century. They were the result, apart from their splendid talents, of the system of architectural education founded 250 years ago by Louis XIV., and his Minister, Colbert. At the same time that the Royal Society was founded in England, to promote the study of science, in which foundation Sir Christopher Wren took part, the Academy of Architecture was founded by the King of France.

François Blondel was President, and in his first address to its members in 1671 he said :—"Are there no books treating of this subject (viz., architecture) which you ought not to read more than once, no drawings of ancient or modern buildings upon which you ought not to meditate, no time nor care that you ought not to be obliged to employ in order to form in your minds the veritable and perfect idea of architecture? Let us confer together in good faith, and communicate our thoughts for the development of architecture. For it is true that it suffices not to have a medium acquaintance with the rules of this excellent art in order to be veritably an architect; and that this quality demands the co-operation of so many virtues and different attainments that a lifetime is insufficient to acquire it."

To show the all-round character of the new society, the members at once set to work to inquire into and report upon the different stones then available for building purposes. I understand this report, which took some years to compile, is a most interesting and useful work. Nor were the King or Colbert behindhand in supporting the architects. In 1666, the Minister persuaded Louis to buy a palace in Rome for the accommodation of selected architectural students for purposes of study; and, in order to encourage students, we learn that the King decreed—I again quote Blondel—that "the sound principles" and "most correct rules of architecture should be publicly taught two days a week" by the Academy, "in order that a nursery, so to speak, of young architects might be formed, and to give them more courage and passion for the art the King ordered that from time to time prizes should be given to those who succeeded best, promising that a certain number of the young men so rewarded should be sent immediately, at the royal cost, to Rome, in order that nothing might be wanting on the King's part to complete their education and render them fit to act in the conduct and superintendence of the royal buildings. At the same time, His Majesty commanded that, during the second hour of the public lectures, those sciences which are necessary to an architect, such as geometry, arithmetic, mechanics, fortification, perspective, stereotomy, and other portions of mathematics should also be taught."

In so thorough a manner, more than two centuries ago, were founded the French Academy of Architecture, the Ecole des Beaux-Arts, and the Grand Prix de Rome. These institutions have passed through many vicissitudes, and while students of architecture, painting, and sculpture have been going regularly to Rome for their four or five years' study since the prize was founded, the Ecole des Beaux-Arts, as we know it now, was reconstituted early in the last century.

To understand clearly the condition of architectural training in France, I must refer you to the instructive article by Monsieur Gaudet in the *Architectural Review* of October, 1903, and a paper by the late Mr. W. H. White, published in the *Transactions* of the Royal Institute of British Architects in 1883.

I am especially indebted to these authors and to the discussion which took place after Mr. White's paper for the information contained in the short description of the classes at the Beaux-Arts I wish now to give you. I include a few of Monsieur Gaudet's own remarks translated from the French of his article.

The education in architecture in France is, above all things, artistic. While it does not neglect the teaching of scientific and purely technical processes, the end and aim of the training is to produce artists. The object of the French training is to render the student receptive, to make him fruitful in design, and imaginative. By making the training very general in character, it hopes to foster that gift with which all artists should be born, namely, the gift of having ideas.

With these ends in view an important position is occupied, in his relations to his pupil, by the master of the atelier or studio. In France, a young man who desires to become an architect acquires, first of all, some knowledge of drawing and modelling, etc., in one of the smaller art schools. He then joins an atelier, much as he would an office in England; yet the difference is great, as the atelier is a studio for the study of architecture only, presided over by a master or patron, who is an architect in practice. It is not an office in which the master's work is done, as in England. In his early days in the atelier he doubtless learns more by the criticism and help freely given him, if he is a good fellow, by the elder pupils, than by the supervision of the master, who, as an architect in practice, would not have time for more than attention to the senior pupils. But the eye of the master is on him from the first, and as he makes his way forward in the work of the atelier, he finds the relation between master and pupil becomes close, almost paternal. The truth is, the choice of the master under whom the pupil is placed is carefully made by the student and his parents. Once placed, the master becomes to the pupil the chief link which binds him to the great tradition in architecture which the French claim has never been broken with them, and which has descended from master to pupil from the days of the Renaissance, and from the great Gothic days when man learnt from man and not from books.

This system which encourages a devoted attachment of the pupil to the master, and the whole atelier to the master, creates an *esprit de corps* which is a great factor in the formation of a French artist.

In addition to this system of master and pupil, the ever-increasing requirements in knowledge of the architect necessitates the school. There are many art schools in France, and while we notice that these schools are always founded for the encouragement of the fine arts and not alone for architecture, our inquiry must be confined to the great national school of the Beaux-Arts in Paris.

It is the custom, therefore, for the pupil who has joined his atelier to prepare himself for the entrance examination into this school; and as this school includes, as its name proclaims, students of painting and sculpture, as well as architecture, the students are always associated with other artists of the future, and form a community which, even when their studies may be for a time purely scientific and technical, never allow them to forget their vocation.

The young architect in France studies in two institutions therefore—the studio, and the school—and he carries with him into the school the influence of his master, as the guide of his studies. For instance, the classes in the school embrace such sciences as geometry and physics, stereotomy (or section work), strength of materials, construction history, drawing, and modelling. But the adaptation by the pupil of this knowledge artistically is influenced by the master of the pupils' atelier. Crudely speaking, while the school can teach the necessary sciences and formulæ, it cannot teach architecture in its highest sense. That is left, and must be left, to the influence of the chosen master.

So much for some general principles. Having chosen his master and joined his atelier, the young aspirant makes preliminary studies in drawing, colouring, projections, scientific work, cast drawing, and modelling. These he presents for the entrance examination at the Ecole des Beaux-Arts. If admitted, he joins the second or junior of the two classes into which the school is divided.

From start to finish in the school, the student is taking part in competitions in design. These competitions are not judged solely by the masters or professors of the school, but by a jury composed of thirty architects, whose services are given gratuitously. Twenty of these are permanent members, and are composed of members of the section of architecture in the Académie des Beaux-Arts, architect professors of the school, and artists whose distinguished careers signal them out for this distinction.

Ten are elected every year by the drawing of lots.

The students in the school are not restricted as to time, but their progress through the school entirely depends upon the number of prizes or marks obtained in the competitions, and if enough marks are not obtained they cease to be members of the school.

For instance, a student on entering is at once in the second class. Here he remains until he wins a medal or sufficient marks to promote him into the first class, with the right to participate in the senior competitions.

It is thus emulation which inspires the school. Coercive measures do not exist. The pupils are treated as men who know what is for their advantage.

The competition for admission is very keen, as the number who apply is great, and the vacancies few. Those successful proceed to studies in science and art. They attend courses in mathematics, geometry, and construction. The air is thick with "concours," or competitions in which the object is to obtain honourable mention in design. Some of these designs are made in the school in fixed hours, others are worked out outside, and are submitted to the jury at stated intervals. They all are intended to train the student to enter the first class where the great competitions take place.

The courses in knowledge of materials and construction are made very thorough, and, as Monsieur Gaudet says, all this demands more or less time; in fact, the sojourn in the second class alone cannot be less than two years and a half, and must frequently be more.

In the first class the studies of the students are essentially artistic. Every two months there is a competition in a set subject, with time competitions in the school. Medals and mentions are given in these "concours," as in those of the second class. In addition, there are open for competition by pupils in the first class prizes of money founded by patrons of the fine arts. There are also competitions in the history of architecture, in drawing from the life, and in modelling.

There are also definite courses in the theory of architecture, the history of architecture, and the history of French architecture. This last course is specially intended to prepare students in the task of restoration or repair of old buildings which may fall to their lot in the future in France.

There are courses in physics and chemistry, including heating, ventilation, acoustics, light, electricity, geology, etc., and in building, legislation, contracts, by-laws, etc.

Courses also, which are open to the painters and sculptors, as well as the architects, are held in literature, general history, history of art, and archæology.

In connexion with the school there are galleries of architectural models, and of sculpture, and a library open to students in the day-time and evening.

Certainly the motive force in these classes and competitions is emulation, and the reward of all this hard work and these trials

of skill is acquired knowledge and developed talent, but there is a more mundane reward as well. For the students in the second class it lies in becoming members of the first class, in itself a high distinction. For the students of the first class there is the Diplôme d'Architecte—the Diploma.

We have seen that the first class must be a high distinction. The Diploma is still beyond, and only those students in the first class who have obtained a certain proportion of marks in the different competitions have the right to offer proofs of their fitness to receive the Diploma.

The student in this trial of his knowledge and fitness for this distinction proposes a subject of his own choice, which is submitted for acceptance to a special committee or jury. If approved, he proceeds to work out his design, often a matter of great labour. The work completed, it is submitted to the members of the jury, while he himself undergoes a *viva-voce* examination at their hands to test his fitness as a practical architect, and he has to give evidence that he has been engaged in some practical architectural work.

This, then, is the culminating point of the French student's career. After many years of hard, unremitting labour, in which he must, by the very nature of the courses of study, prove himself to be an exceptionally able and hard-working man, he has this great prize even before him still to obtain—the Diploma. To make clear what an arduous course this is it is enough to say that there are only 700 or 800 architects in France who possess the Diploma.

There is, as you all know, yet another prize—the Grand Prix de Rome, open only to Frenchmen, who must be unmarried, and between the ages of sixteen and thirty. This prize is not part of the Ecole des Beaux-Arts, but is given by the "L'Institut de France." As a matter of fact it can only be a competition between the best pupils of the Ecole des Beaux-Arts. None other would have a chance.

The competition is carried out first by a process of preliminary competitions and eliminations, until finally ten only are chosen by a jury of architects to compete in the final competition. As you know, the work produced in this competition is in every way remarkable. The successful competitor spends four years at Rome at the Villa Medici, and is obliged to carry out some definite work in the study of architecture in Italy, Greece, or the East. The student during this time is the guest of his country, and is free to promote his studies in comfort and dignity, amidst the companionship of the most gifted men of his time in the arts, and is certain of employment by the State on his return to France.

Such, then, is a brief sketch of the system of architectural training which obtains in France. For thoroughness and for masterly qualities it has long been pre-eminent in Europe. But all architects in France do not go through the whole of this training. Many, if they get into the second class, may not pass into the first. But our concern is not so much with the student as with the system of training which makes it possible for those who have time and talent to attain to a high standard of excellence.

I would like to quote to you some words used by the late Mr. Fred Cockerell, a late Hon. Secretary of the Royal Institute of British Architects, when reading a short appreciation before that Society of Duban, Vaudoyer, and Labrouste in 1875. These architects were honorary members of the Institute, and they had died within a few years of one another not long before this date. He said: "I find in these men a high ideal, involving a high ambition pursued with a singleness of aim and an untiring energy, quite unsullied with any taint of greed. The early ambition of these men, whether they are born to ease or to toil, is not to rush into practice, but to distinguish themselves in the school, and to gain its honours, and their crown—the Grand Prix. Their lives may, indeed, put us to the blush, and I cannot but feel with humiliation how great is our need of the study of them."

In conclusion, if my time had permitted, I should have liked to have pointed out with more directness some features in our training where we may fairly claim some superiority over our brethren abroad. I will mention but two:—(1) In the training we give our students in some forms of country and town house work; and (2) in the practice our students made, to which I have before referred, in measuring and drawing the old work of their own country. The French students, we may affirm to their undoubted loss, do not measure and draw the fine ancient buildings of their country to anything approaching the extent our students do in England. A select body of French students, on the other hand, like the Prix de Rome men, do make splendid measured drawings of old work in Italy and Greece, as an inspection of the publication called *Fragments d'Architecture* will at once show you; but, as a body, we can say that the French students do not make a practice of this necessary form of study. This is a weak spot, and you can see the result of it in some of their work. But in their modern work of a monumental character, in the laying-out of a city, in the designing of civic and public buildings, in which the highest qualities of architectural art are called for, we know how they invariably succeed, and although tradition should not be so blindly followed as to stultify individual talent and invention, we surely see in studying the French methods of architectural training, the benefit of a carefully-planned scheme of advanced study among artists. To promote this there would be no need to give up our cherished institutions. I would not willingly change anything in the syllabus. We need not have ateliers exactly like the French. Our offices can be very good studios, and our best schools are already studios of a high order. But what we have not got, and what I think we need, is a great central comprehensive school of art, preferably as in Paris, of a great national character, that is to say, supported by the funds and encouraged by approbation of the nation, and some system of studentships, or other inducement, which would make it easy for our best students to prolong their studies in art, in conjuction with their studies in practical building work. If this could be constituted on carefully-considered lines, I believe it would lead to what we all have at heart, namely, the greater knowledge of, and the greater glory of, Architecture."

At the conclusion of the reading of the paper Mr. Horsley showed a number of lantern slides, being examples of work done in competition for the Grand Prix de Rome; works by ancient prize-winners, such as portions of the Beaux-Arts, by Duban, the Bibliothèque S. Geneviève, by Labrouste, and views of Palais de Justice in Paris, by Duc, and others. There were also on view a number of atelier and Ecole drawings made by Mr. R. Phenè Spiers.

The Chairman said he was sure that the meeting would agree that they had had an extremely interesting and valuable paper, full of excellent suggestions and thought, and there was excellent material for a valuable discussion.

Professor Simpson, in proposing a vote of thanks to the lecturer, said he had listened with very great interest to Mr. Horsley's extremely interesting paper, in which many points had been touched upon that he (the speaker) would like to refer to if there were time; but perhaps he had better confine his remarks to two or three of these, so that others could speak after him. Mr. Horsley rather complained that the Board of Architectural Education had limited its scheme to four years, but that, perhaps, was not quite a correct deduction from their public utterances. The four years they regarded as a minimum, and the idea was not—he thought he might fairly say so—to limit to four years the course of study pursued by students, or to limit it at all. As they all knew, they remained students to the end of their lives, and the four years' course was suggested as a minimum; after that the student would continue for some years the kind of work he had been doing during the latter two years of the four years' course. He was rather sorry that the Academy had agreed to admit students without examination on the presentation of the two years' certificate, because it seemed to him that—he supposed one was allowed to express one's opinion on the action of the Academy—if they would allow students to enter after receiving the four years' certificate, there would be a much greater likelihood of the Academy becoming what Mr. Horsley outlined, *i.e.*, a real Academy of higher work for architectural students in England. As it is, a man at the end of two years was certainly not up to the standard of students in the Academy in the days, for instance, when Mr. Horsley was a student there, and he knew when he (the speaker) was a student he had often heard men express their regret—men who had joined the Academy when they were too young—that in their first two years they were not able to avail themselves of the advantages of the criticisms passed by the visitors, and that they were crowded out at the end and had absolutely no chance in competition for the valuable prizes awarded by the Academy. If one was ever to have such an Academy of architecture as Mr. Horsley outlined, it seemed to be essential that the two years' preliminary course should be extended. He thought that two years was nothing like sufficient to take in the many subjects of which an architect was now expected to have a considerable knowledge. It might be different if schoolboys' preliminary training were different; but, as it was, the common experience was that the knowledge of mathematics, mechanics, and graphic statics of men who had just left the public schools left much to be desired, and might in some cases be said not to exist at all. Then as to drawing. How many boys left school having done any drawing worth anything at all? And as to modelling, that most valuable aid to a knowledge of form, it was only from one or two schools in England—schools that were regarded by the headmasters of other schools as "crank" schools—that they got a student who knew anything about modelling when he began his architectural training. In any school of architecture one had to do a lot of work which ought to be done by the ordinary schools, where, in the present state of affairs, it was hardly done at all. Mr. Horsley had referred to the valuable work done in America. There was no country in the world where education was so well understood as there, where all the schools were graded, and where a student passed from one school to another in the natural course of things. That system enabled one to know where one was, which was not the case in England. He was very glad to hear Mr. Horsley's appreciation of French art, but he had some slight doubts whether the general high level of French art was due so much to the training at the Ecole des Beaux-Arts, very fine though that undoubtedly was. He felt that the excellence of French art was due to the fact that the French traditions of architectural design had never been broken. Mr. Horsley told them that the traditions of the Beaux-Arts extended for 250 years. The tradition of architectural design in France extended for nearly double that time. The revivals—the Greek revival and the Gothic revival—never conquered the French architects as they conquered the men in England, and for that reason the traditions had remained unbroken all through this long period of time right down to the present day. Even the French Revolution, which helped to turn the work done in other countries topsy-turvy, did little more in France, if one could judge from the few buildings in Paris, than turn a bracket or two upside down. The Greek revival affected other things in France more than architecture. It could be seen in painting in the work of David; in sculpture in the work of David d'Angers; and it could be seen in fittings in the furniture of the Empire; but architecture was too well grounded, its foundations were too strong, and the blasts of the revival may be said to have blown against its walls without effecting any real entrance. One point touched upon towards the end of the paper was as to French engineering work, from which the most important and valuable lessons could be learnt. French architects collaborated, and were capable of collaborating, not only with painters and sculptors, owing to the training they received in the Ecole des Beaux-Arts, but also with engineers, and the result of that was seen in the fine railway-station building of the Orleans line on the Quai in Paris facing the old gardens of the Tuileries. Outside and inside, but especially inside, that building was a liberal education. He did not suppose that Mr. Horsley when he

spoke about the Board of Architectural Education "establishing" the two years' course meant that literally. The two years' course was in existence in various centres for several years before the Board was formed—in Liverpool, for instance, and in the School of the Association. The immense success of the Association Day School must be a matter of the greatest gratification not only to the Council of the Architectural Association, to Mr. Maule and the other teachers of the School, but to everyone in England who was interested in any way in architectural education.

Mr. Arthur Keen said Mr. Horsley had taken a good subject and treated it well, and he was to be complimented on the excellent way in which he had expressed what he had to tell them. It was certainly true that the present system was very different from the old order of a generation ago, and it was now possible for anyone possessing ordinary intelligence and some capacity for hard work to develop himself into a reliable and useful architect at a moderate expense and in a comparatively short time. What Mr. Horsley had told them about the Ecole des Beaux-Arts and the French system generally was interesting and quite wonderful. It represented the Academic method carried to its utmost point, and it had been in operation long enough for its effects to be clearly seen, but he felt that we should be cautious about running too closely or too far on the lines followed in France. Whatever we might gain, we stood to lose a good deal. The distinguishing qualities of English work, its breadth and simplicity, the reliance we place on the texture and colour of ordinary materials, the intrinsic beauty of much of our ecclesiastical work, and a certain dignity and reserve that belonged, at any rate, to the best of our public buildings, were best learned under a good master in a good office, and were likely to be lost in the fierce competition of the academic system. At the recent Congress the foreign and American architects spoke in the highest terms of the English domestic work, but it was a noticeable fact that many of its best exponents—he could give the names of several of them—were men who had never spent a day in any architectural school. Then, too, we had a long line of names of distinguished architects whose work possessed all the best qualities of design, and who had been trained by the old method. Perhaps they were men of genius, and it was true that while education would not make a genius, neither would it mar him, but these considerations should not be overlooked. One thing that occurred to him as a strong argument for wide and systematic education was that it would eliminate the vulgarity and coarseness in design that were common in the latter half of the past century. Then, too, we had to face the facts as we found them. The recent Local Government Acts, Education Acts, and others had resulted in a greatly increased demand for big public buildings; large commercial corporations desired important-looking monumental buildings, and in our fine new streets imposing fronts were insisted on, so that it behoved our students to be well equipped for the work that awaited them in these directions. Mr. Horsley had said very little about the Royal Academy, although he had been a student in its schools, and although, as the son of one who was for many years the greatly-respected treasurer of the Academy, he knew a great deal about its work; but he believed Mr. Horsley would be the first to acknowledge his own indebtedness to the training he got in its school. Since his own time the management of the Royal Academy Schools had changed a great deal, and he understood that students were now admitted earlier than was formerly the case, and, personally, he thought this was a mistake. His own view was that the Academy should be absolutely an advanced school, and that students should not be received there until they had been through a full four years' or more course at the Association or other schools. Properly equipped with the materials, as it were, of their art, the knowledge of methods of construction, principles of design, the right uses of ornament, and so forth, students should then go to the Academy to exercise themselves in making designs for all kinds of buildings under the direction of a good master, and of the best architects in the country as visitors. He should regret it exceedingly if the Academy Schools took any place but the highest. The Academy possessed a valuable asset in the fact that it had the three schools of painting, sculpture, and architecture under one roof, and it was very desirable that the students in all these schools should be brought into close touch with each other. It was difficult to see how this was to be brought about in the classes themselves, because obviously an architect, for instance, working in the Sculpture School could not take the advanced work that suited the regular students in that school; but they all knew that an architect who had a sculptor for his intimate friend would learn more from him about the disposition of sculpture in architectural design, the scale of figures, and so forth than any books or lectures could teach him. He commended it to the consideration of the members of the Academy to see how students in their different schools could be brought together as companions and friends, not merely for their pleasure, but for the improvement of their arts. He heartily seconded the vote of thanks to Mr. Horsley.

Mr. Walter Millard, in supporting the vote of thanks, said he joined in thanking Mr. Horsley for a clear and straightforward statement of the subject, and for something that they could discuss. Mr. Horsley referred to the large amount of room and need there was for preliminary training before a student began building; but surely Mr. Horsley meant before designing was undertaken—at all events, he would make that as a suggestion. He could not understand what all this designing which students were doing was for when they ought to be doing preliminary work. He did not mean in any particular school. He had not enjoyed the privilege of seeing work done in any architectural school for some years past, except for a few minutes in Professor Pite's school. But he had a suspicion, for he used to do it himself, that students were encouraged to make so-called designs years before they ought to be allowed to do so. Preliminary work was, in his opinion, not carried on long enough. When an architect with any conscience got a beginner the question was what to do with him, and, of course, the easiest thing was to let him make designs; but the doing of those designs bore to architecture somewhat the same relation that doing verses at school bore to literature. It might be said: What was the alternative? His reply was: Let the student learn the parts of the structure of a building in the reverse way; let him dissect an existing building and put it on paper in the reverse way to which it was produced; *i.e.*, by making drawings *from* the work. It might be said that that could not be done in a school, and he knew there were difficulties, but such work could be done in portions. Take almost any building which was a sound structure and that had nothing in it—in the way of design, he was going to say—and let the student try and grasp it as a structure, and put it on paper in a set of working-drawings such as could be used to reproduce the building again. The men who had done that much would have had some preliminary training, and there was plenty of time after that to make what they imagined were designs. Much depended on the office a man got into, or the school, and on the men he worked with—to say nothing of those he worked under. He should like to suggest that a student from the beginning should be made to realise that he was an architect. As far as he had observed—and it had been forced upon him by observation—many of them seemed to forget as soon as they left the school or the office that they were architects. And that brought them to the taking of photographs. He would say to those who took photographs that their sisters, their cousins, and their aunts, and their little brothers could do that, but could not take plans and sections—work which they as architects ought to be doing. For our profession life was too short to spend on accomplishments that other people could do as well. As to a four years' course as a minimum, he should think it was a minimum! If they gave ten years for training and another ten to getting believed in—a man's "devilling" days, they would arrive at about the time it took to turn out an architect. That was his experience and, he believed, the experience of most men who had done anything. By all means let there be a higher school, and let the door be kept very close; and when a man had got in and had passed through—whether it be the Academy or the Institute Final Examination—let him remember there was no finality about this, and that he had only begun another chapter. Then came a further process of examination, inevitable and lasting for life, at least, viz., the process of being found out—of being found out as an architect, and as a man.

Mr. H. P. G. Maule, in supporting the vote of thanks, said he rose with great diffidence to join in the discussion, as Mr. Horsley had been thinking about the subject they were discussing for many years. But he (the speaker) had had this advantage: he had had the educating for the last four years of a large number of students, and as a result he must say that there were two sides to the question under consideration, *i.e.*, the theoretical side—the theoretical syllabus as to what was the best thing to do in architectural education—and the student's point of view and what they could get the student to do, which was a very different thing sometimes, and a balance had to be struck between the two. He was delighted to see in the paper that Mr. Horsley laid stress upon the four years' training before any higher course was taken, and he (the speaker) most cordially and emphatically supported that, and also what Professor Simpson said as to the two-year course and the four-year course. The paper would do a lot of good, and it would clear the air of a great deal of confusion, he hoped. Bacon said that truth came more often out of error than out of confusion, and he was afraid that there was still a great deal of confusion in regard to architectural education. It seemed to him that the Board of Education had done a very great work indeed, but it, to some extent—Professor Simpson would pardon him for saying it—had had the result of treating the subject from the theoretical point of view. It had set down on paper a syllabus and various suggestions which it thought might be followed, and that syllabus and those suggestions must be to a certain extent theoretical, because up to the present time—or up to the time the Board made its report—there had been comparatively little training of the sort now coming into vogue. The Board had the advice at the time of Professor Simpson, who was at Liverpool then, but the work had grown much bigger since. He (the speaker) had had the advantage of looking at the opposite side to the theoretical and of considering how much the student could absorb and how much he was prepared to absorb and how much it was good for him to absorb during the first two years of his training. It must not be forgotten that we had to provide primarily for the student of average capacity. The best and quickest students would always be in advance of those, and the weakest would be gradually eliminated, that was one of the advantages of a scheme such as this, but the whole course must be adapted to the capacity and intelligence of the average student, unless confusion is to result. He had come to the conclusion that there was great danger of overdoing the preliminary training of this first four years' course if the syllabus was strictly followed. As a matter of fact it could not be followed; it would take a man ten years to get through it thoroughly. It was necessary, therefore, not to read the syllabus too literally, but to take a good deal of it in the light of suggestions. Still, there was a great risk of overdoing these four years of training and of attempting to do too much, and no good came of that. The great value of the paper was that it threw out the suggestion that the body which could best take up the higher education of the architect after the four years' course was the Royal Academy. It would be the opinion throughout the country that the Royal Academy was the proper body to take up and carry on this higher education, and they would have the support of every architectural body in the country, though not if they tried to carry on the preliminary as well as the higher training. It must do the one or the other; not both. The various schools throughout the country could do the preliminary work. The student could take up the four years' course, which was the minimum—two in the school and two while in the office. The four years'

course could be taken in the nearest centre—London, Liverpool, Birmingham, or Manchester, or wherever there was an architectural centre; the first two years in the school alone, and the next two in the office during the day, and in the evening under the eye of those who had been teaching him or those he had been handed on to. How could they put a student who had only had two years in school to advanced design work when he might have had hardly any office training at all? He would run up against all those hundred and one little difficulties which architects experienced when they did practical work, and would make mistakes which even two years in a good office would go far to eliminate. The higher education should not commence until the pupil had had two years' preliminary training and two years' office training, and then he should be in the position of the man who by the old system had had six years of training, for when he now entered an office after two years in a school, he was able to begin work which in the old days the student did not touch for three years or even more, and at the end of four years he should be able to take advantage of the criticism of men who had been doing actual work and who were thoroughly able and competent to criticise his designs. If they could in some way modify the syllabus of the Board of Architectural Education and suggest that it attempted to cover too much ground, and that some of the subjects which were suggested for the four years' course should be thrown into the subsequent work, it would make for more simplicity in training throughout the country. He had to thank Professor Simpson for his kind words about the Architectural Association School; they were not doing better work than anyone else, and he hoped that throughout the country there was a new era in architectural training. If the Association was successful, it was only because of the long time they had been established. He did not wish to be misunderstood by what he had said about the Academy. It seemed to him that there was a danger if they took students at too early a stage. He had known students who had gone into the Academy schools after one or perhaps two years' preliminary training, and he did not think he should be maligning them if he said that they were not above the average in capacity; and if the Academy examination was made so easy that students of one or two years' training could get into it, the standard would be lowered, whereas they should look up to the Academy as giving the most advanced training in the country. When students of one or two years' training got in in this way their time would be up in five years, and, generally speaking, they lost their chance of winning the higher prizes. As to the very excellent slides and drawings they had seen that evening, there was one thing they could learn from them, *i.e.*, the great value of tradition in architecture. All the better French work was marked by great scholarliness and great patience, which could come only by complete and thorough training, and not by hurrying through their training in as few years as possible.

Mr. Halsey Ricardo said he should like to add his thanks to Mr. Horsley for his interesting and ably-put-together paper. But he would like to traverse one statement in the paper which seemed to contain what is really now a misconception, *i.e.*, the attitude of the trade unions towards the students. Up to lately they did bar students from coming into the various polytechnics and other schools on the ground that they were not tradesmen and not craftsmen; but now he thought that nearly throughout the country an architectural student was, *ex officio*, a craftsman and tradesman of any particular branch, and had the *entrée* to the instruction given in the various trade schools, and in only one case, so far as he knew, was the architectural student not allowed to handle the materials. Mr. Horsley dealt picturesquely and eloquently on the tradition which exists in French architecture—a thing which, if they were acquainted with French buildings, they could not help being at once impressed by. It was a great and notable thing, which had stood the various attacks of time and fashion, and which made its own mark. Those who went up and down Piccadilly could not fail to notice that influence in the Ritz Hotel; there was a quality to be seen there which we did not possess ourselves. The traditions of French work had been kept alive largely by the fulcrum and lever which we do not possess in this country, *i.e.*, Government patronage. When a man got a diploma he was almost certain of patronage, and if he got the Prix de Rome he was certain of it, and he could take five or ten years in preparing. What with the atelier, and still more the Ecole des Beaux-Arts, the French retained the tradition which had been handed down for so long. We did not get that, and it was a tragic thing to find men spending their lives in learning how to build and in synthetising their knowledge, and then, when they died, for their efforts and work to drop. Think of Butterfield! He began as a young man in the XIXth century, and he saw buildings unrestored and forms of craftsmanship still living, though languishing and getting stiff; and being a man of immense observation and with a great memory, he collected the information and knowledge and used it. But he died, and all his store passed away, and very little of the school was left behind. What was wanted was the collection, with great care, of architectural students' sketches and works, to be kept as memorials and records of things. We were not sufficiently careful of the records of the past, and such a collection would be useful. He would admit certain photographs of examples of old work and the way things were done. He hoped for a great deal from the Board of Education in its endeavour partly to build itself on a substantial basis—the basis of structure underlying all forms of finished construction; but also in their endeavour to co-ordinate the form of teaching. Great advantage was to be had from English technical schools—a great deal of knowledge was to be got from them, and also from the engineers, from whom architects could get much good. Up to a certain point the two professions were much the same; the chief differences appeared when each profession came to specialise. Co-ordination of knowledge was what was wanted. It ought to be possible to be able to say, as was said in Wren's time: "A window is made thus," or "A door is hung—so." There was a right way of doing things, and that should be formulated in the schools all over England, and in many ways the co-ordination of education should be the collection and synthesis of knowledge, and that knowledge should give us the definite statement of how rightly to do things. Once past all that we should save a lot of time, for we wasted a lot of time in having to find out how to do things the right way—to do which ought to have been settled long before. There was so much diversity of opinion as to this and that, and the doing of things, and the difference was often tweedledum and tweedledee. We wanted to know definitely the right way so as to get on. The engineers said that by the force of mathematics so-and-so could not be otherwise, and the result was right; but as to the architect's way of doing things, we got various opinions—first one and then another, until one had the man who said: "I may not be able to give my reasons, because I don't pretend to understand the technicalities of the matter, but I know what I like." And thus we got—confusion. A great deal should result from the future education of the student.

The Chairman, in putting the vote of thanks to the meeting, said there was one word of warning to students which might be uttered, *i.e.*, to point out that our modern methods of education, which, in a sense, followed the lines laid down in France, tended towards the elimination of the unfit, which, perhaps, in the long run, was the kindest thing, for in the course of two years it would be possible to see whether a man was fitted to continue his studies in the profession, or totally unfitted; if unfitted, it would be wiser to advise him to turn his attention to more congenial pursuits. Perhaps students would pardon him for reminding them that there was the need of such a warning, and it might stimulate them to redouble their efforts to reach the top. They must not forget to thank Mr. Spiers for sending the extremely interesting drawings they had seen, and he would ask Mr. Horsley to favour them with some comments which he had received from Mr. Spiers.

The vote of thanks, having been heartily agreed to,

Mr. Horsley, in reply, said that the different points which he hoped would be noticed had been noticed, and there was nothing more for him to say. As to Mr. Spiers, his remarks on the paper were as follows:—Your paper is quite right, but it does not go far enough, because besides the various examinations there are four important *concours de construction* which absorb a whole year. I did not go in for them, having no time, and choosing to stick to design; besides, I did not think French construction could be of much use to me. I only spent two years in the Ecole, and of that time I was away five months travelling, and one month ill. At least three years is required to pass into the first class. [This, remarked Mr. Horsley, was some guide to the length of time the school course took—in all about six years. To this they must add a year or two for preparation work, which made eight years; so that a student could generally have two tries for the Prix de Rome before he was thirty.] Most of the winners of the Grand Prix were men who had competed more than once. All I did was to get my six marks for design, although I put myself *hors de concours* three times. In order to pass from the second to the first class, it is necessary to obtain six marks for design, which involves perhaps twice that number of designs, and to pass examinations in:—The history of architecture; perspective, with large drawing; descriptive geometry; mathematics; drawing of ornament and figure from the cast; and to obtain at least one mark for the following:—*Concours de construction*—(1) Brickwork and masonry, including stereotomy, with four double elephant sheets of drawings; (2) timber work and joinery, also with four sheets; (3) ironwork; (4) general construction, including all trades, also with four sheets. The constructive drawings are somewhat the same as those made for the Royal Institute of British Architects' examination, but perhaps more theoretical; and in the case of those who have not yet worked in a practical office are chiefly copied from published drawings. For architectural design there are two classes of subjects:—(1) Esquisses, done in one day in the school; (2) *projets rendus* which take two months.

The Chairman announced that the next meeting would be held on March 8, when Mr. A. N. Prentice would read a paper on "Spanish Architecture."

The meeting then terminated.

THE ARCHITECTURAL ASSOCIATION DISCUSSION SECTION.

THE eighth meeting of the session was held at No. 18, Tufton-street, Westminster, S.W., on Wednesday, February 20, when Mr. H. C. Corlette took up the subject of "Colour Decoration," under the headings of (1) its modern application, domestic and ecclesiastical; (2) its history. The subject was illustrated by some finely-coloured drawings showing a study for the interior treatment of a large house, and a suggested external design for a church in which coloured materials were made use of. Also by some studies and working drawings of decoration on the flat ceiling of a small chapel in the South of France. These represented some modern suggestions. The historical aspect of the subject was illustrated by some colour studies of the decoration on the vault of S. Anastasia, Verona, the Lady Chapel in Chichester Cathedral, and S. Alban's Abbey. Some excellent water-colour studies by Mr. J. D. Crace, kindly lent by him, were also shown in illustration of both modern and Renaissance work, etc. Mr. Corlette suggested that it was desirable to consider one room in relation to another, and to the character of the design of the whole house. This he did not think was sufficiently done in some instances with modern work. The character, tastes, and temperament of those who were to occupy a house were, or should be, important factors in deciding what colour schemes might be adopted. It was quite possible, he thought, to have all the design in colour decoration that was necessary without making use of the human figure. Plain surfaces of colour, or surfaces broken with some pattern design, were sufficient in

most domestic work. But he considered that we were inclined to make too much use of patterns. We saw them on walls, on ceilings, on the carpets, on the floors, and also in the curtains and on the coverings of the furniture. More rest, more repose, was desirable in the fussy and crowded modern room. It was very necessary to know where to stop using colour or patterns. It was better, for instance, to avoid too emphatic a design on a wall where there were pictures to be looked at, and enjoyed. And when there was a pattern on the carpet, the coverings of the furniture might well be kept quiet, even plain, and destitute of pattern design. The same might be said of the curtains and ceiling in relation to a wall. The aspect of rooms was an important consideration. And if a room was dark it could be made lighter, or if it was small it could be made to appear larger by a judicious handling of decoration.

With the ecclesiastical side of his subject he thought its history might be considered identified. For did we not owe much to the Church for her promotion in the past of great schools of painter decorators? He did not think that in this connexion we made as much use of coloured materials for structural decorations as we might in some instances.

Some of the best examples of old work showed us that, as a rule, very few colours were used. With the primaries, and, say, green, white, and black, much was done in the past, and could be done to-day. Mr. Corlette concluded his remarks by some reference to stained-glass design. He explained the difference between "pot metal," "slab," and "flash" glass, and also mentioned the use of silver stain.

Mr. Hamp, who opened the discussion and proposed a vote of thanks, considered architects should make a special study of colour decoration, both externally and internally, as the design for the church at London-road showed what could be done externally in ecclesiastical work. In internal domestic work, he thought the scheme should be restful, and the fewer colours introduced the better, and for ceilings it was a mistake to put too much colour on them; they should be simple, and without figures, which one had to strain one's neck to look at

Mr. Horsnell, in seconding the vote, referred to decoration on a large scale, where they were almost bound to bring in the painter, and thought the architect should associate more with the painter. Sometimes richness of marble might clash with a fresco which may be introduced. This he felt was somewhat the case with the New Sessions House, Old Bailey. The most successful scheme of modern work, he thought, was the Law Society's Buildings, where the materials seemed to go so well together.

Mr. L. M. D. Gill pointed out an excellent example of decoration in a church in South Croydon, where on the west wall was depicted the Tree of Life—about XIVth century work.

Messrs. D. T. Fyfe, D. A. Forster, W. G. B. Lewis, J. H. Pearson, M. G. Rechell, Louis Jacob, and G. H. Jenkins also spoke, and then Mr. J. D. Crace, the Special Visitor, in summing-up the discussion, said on the question whether ceilings should be left white when the walls were coloured it appeared to him to be inconsistent, and it was a mistake to think that a plain white ceiling gave more light than one coloured. They did not gain a sense of light by painting a thing white. With regard to colouring on absorbent surfaces it was hopeless in a place like London; but, assuming they had a country church, some form of tempera painting would last long enough, and the best proof of that was Canterbury, done either in the XIIIth or XIVth century in St. Anselm's Chapel, where the tempera painting was probably painted with white of egg. The question of aspect had been referred to. This was important, but more important was the source of reflected light that came into a room. In many country houses they had a gravel path outside, but should there be green grass outside the colouring of the room would appear quite different. With regard to the absence of mouldings, he thought that in the Sistine Chapel it was left to the painter to suggest some sort of constructive purpose in his decoration. In modern houses the scheme should be simple. The staircase was the most unmanageable piece to deal with, and in this they required to establish a sense of base somewhere, and with that object to have horizontal divisions, giving a point from which they could start again. They would find this in the Adam houses. When passing from one room to another, the one you come to should have some affinity either by contrast or harmony to the one you had left. Another point was the fact that you have not only carpets, but large masses of colour in curtains, and it was important to have the scale of pattern adjusted to the general height and proportion of the room. In drawing-rooms, again, if the woodwork was painted white it was not nice to have large masses in one place, and therefore if the room was small, and there were folding doors, these should not be white.

Mr Corlette, in replying to questions, said there was a distinct difference between painting, as such, and decoration. Much that was painted and intended for decoration did not quite realise that idea. He was so much of a heretic as to think that the ceiling of the Sistine Chapel was to be considered rather as painting than as decoration, or decorative painting. There was certainly no reason why a painting should not be part, perhaps the central feature, of a scheme of decoration. But decoration called for special training, and special qualities, in a painter who was called upon to design it as well as paint it. A painter and architect must necessarily work together and in sympathy if any good result was to be expected. He referred to the Abbey Church of S. Savin, near Poictiers, S. Mark's, Venice, and the cathedral at Albi as interesting examples of fine decorative work; work which was beautiful and rich in colour, excellent in design, and at the same time simple and readable in composition. In each of these figure work was combined with simpler forms of pattern design with admirable results.

THE ARCHITECTURAL ASSOCIATION SPRING VISITS:

IV.—GLOUCESTER HOUSE, PARK-LANE, AND No. 1, HAMILTON-PLACE, ETC.

THE interest of the Spring Visits was well maintained at the fourth excursion of the current series, held on Saturday, February 23, when two more important West-end buildings were inspected in process of erection. These facilities for watching the changes in modern design, methods of construction, and use of new materials in London are enthusiastically accepted by a large section of the members of the Architectural Association.

Our readers will be familiar with the old house formerly standing at the corner of Park-lane and Piccadilly, which for many years was the residence of the late Duke of Cambridge. The property was recently bought, and a large building, consisting of shops and high-class residential flats, now occupies the site—a change significant of the times. By the courtesy of the architects, Messrs. Collcutt & Hamp, arrangements were made whereby the study of the work was made convenient, and the latter gentleman attended the visit, giving the essential information which neither the plans nor the unfinished state of the scheme could convey. The site has been somewhat narrowed to meet London County Council requirements for the widening of this end of Park-lane, and, as the new building is many times greater in extent than the old, difficulties with regard to surrounding rights of light at one time threatened to play havoc with the design. But the architects have emerged from the problem with conspicuous success. Two satisfactory elements noticeable are the welcome give-and-take tendency of the London County Council in many of its regulations and the modified interpretation of the law of ancient lights, both of which have permitted a facile development of the land.

The ground story contains a number of shops on the Park-lane side, the corner site next Piccadilly being intended for a bank. The basement has cellars, etc., for the shops and bank, caretaker's apartment, coal-cellars and store-rooms for the flats, etc.

A large entrance-hall with elevator for use of the flats is placed on the side front. There are six upper stories, each of which contains a very large suite of big rooms, producing an accommodation almost equal to a town mansion. The fact that the hall of each suite is about 40 ft. long will convey an idea of the large scale upon which the residences are planned, for which it is understood unusually high rents are asked. Little can yet be said of the ultimate effects of the work, owing to its unfinished condition. The fronts are faced with Messrs. Doulton's glazed terra-cotta, called Carrara ware, the insipid colour of which is now familiar. The building generally, including roof, is a steel-framed structure designed with a full amount of metal. Extensive provision in iron and other staircases is made for escape from fire. Messrs. Patman & Fotheringham are the contractors.

At No. 1, Hamilton-place, a totally different, yet interesting, work was seen. The Crown leases of a block of three houses having been renewed, it was required that new Portland stone fronts should be put to each house; and it was to inspect this somewhat unusual process of renovation that a visit was afterwards made to the easternmost of the three residences. Messrs. Romaine-Walker & Besant are the architects, and Messrs. F. & H. F. Higgs the contractors, to whom the members were indebted for the privilege of investigating the construction.

The new facing advances the building line about 6 in., of which only the reveals of the doors and windows, together with general bonding stones, were cut into the old brick walls.

Underpinning became necessary, therefore, to the old walls, and a slate damp course was inserted. On the Hamilton-place front the porch is new, and eight old chimneys have been gathered into three stacks. Little change is made to the interior beyond the alteration demanded to the main staircase; here a decided improvement to the convenience and proportions of the interior has been made, retaining at the same time the character of the old work.

THE SURVEYORS' INSTITUTION.

AN ordinary general meeting of the Surveyors' Institution was held on Monday at No. 12, Great George-street, Westminster, S.W., when a paper was read by Mr. A. J. Spencer on "The Agricultural Holdings Act, 1906." The Act, he said, in its final shape was a considerable improvement on its original condition, and he proceeded to go through the various sections *seriatim*, drawing attention to the changes in the law which they respectively effected. He said that sect. 1, subsect. 1, substitutes, for the corresponding section of the Agricultural Holdings Act, 1900, the following:—

"Where a tenant has made on his holding any improvement comprised in the first schedule to this Act, he shall, subject as in the Agricultural Holdings (England) Act, 1883 (in this Act referred to as 'the principal Act'), and in this Act mentioned, be entitled at the determination of a tenancy on quitting his holding to obtain from the landlord, as compensation under the said Acts for the improvement, such sum as fairly represents the value of the improvement to an incoming tenant."

The only alteration effected by this section is the omission of the words, "Provided always that in estimating the value of any such improvement there shall not be taken into account, as part of the improvement made by the tenant what is justly due to the inherent capabilities of the soil." This proviso was in sect. 1 of the Agricultural Holdings Act, 1883, and was repeated in the Agricultural Holdings Act, 1900.

The actual legal effect of this clause, now omitted, he had never been able to arrive at. If pressed to its fullest extent, it might nullify any right to compensation at all, for it might be said that the value of almost any agricultural improvement, when once made, was due to the inherent capabilities of the soil? What was the value of drainage apart from the inherent capabilities of the soil? Again, fruit trees when past the age of planting, apart from the soil where they were planted and its inherent capabilities, would be of no value. Artificial manures when applied to land were only valuable because the soil had certain inherent capabilities. It was obvious, however, that it was never intended that the clause should be applied in this way, nor had it ever been thus applied in actual practice, so far as he knew. What, then, was the effect of the omission of these words? To take the extreme view as to the effect of their omission, he supposed it might be argued with some plausibility that

if you do not consider the inherent capabilities of the soil the landlord might, in certain cases, have to pay by way of compensation the whole value of the land in its improved state. The difficulty arose principally in the case of improvements of a permanent character. For instance, some land when undrained might if it continued in that condition be quite worthless to rent, but if drained might be of the annual value of say 30s. per acre; or the addition of buildings for stock or the provision of a water supply might make all the difference between a valueless and a valuable farm. It would not seem reasonable, and could scarcely have been intended, that a landowner should have to pay as compensation for such improvement the difference between a capital sum based on the rental value of the land without the improvement, and as it would be with the improvement added. Such sum might be out of all proportion to the cost of effecting the improvement, and might practically eat up all the landlord's interest. He did not think that the presence or absence of the provision as to inherent capabilities would justify valuations for compensation being made on either of these extreme views of the meaning of the Act. He submitted that the clause was intended, perhaps unnecessarily, to guard against the compensation to the tenant including anything properly referable to the landlord's property, and that its omission was not intended or calculated materially to alter the basis of compensation. The key to the principles on which valuation of improvements should be based was, he submitted, afforded by the latter words of this section, viz.:—the compensation to be ascertained is "such sum as fairly represents the value of the improvement to an incoming tenant." That was, of course, not necessarily the actual cost of the improvement, but such sum as an ordinary incoming tenant, with money at his disposal, would be willing to pay for the improvement, over and above what he would have paid in rent for the land minus the improvement, but bearing in mind the possibility of its being made. The value of the land minus the improvement was not to be taken on the supposition that the improvement had not been, and could not be, made, but at what its value would be to a man capable of making and willing to make the improvement. To take the instance of undrained land: the unimproved value was not simply its rental value to a tenant without the improvement, which may be nil, but its value assuming and remembering that it might and could be improved, by the expenditure of perhaps not a large sum of money in drainage. The compensation was the difference between that and its improved value as drained land. The principle was quite clear, though, of course, its practical application often required the greatest skill and experience. That omission would not materially affect valuation was the view adopted by the Royal Commission on Agriculture in their final report in 1897. Having regard to such difficulties of valuation as might arise, it would probably be expedient that the practice which at present obtains in England, that farm improvements of a permanent character should generally be made by and at the expense of the landowner, should continue.

THE CARPENTERS' HALL LECTURES: THE CITY CHURCHES: THEIR HISTORY AND ARCHITECTURE.

ON Thursday evening last week the second of the spring series of lectures was given at Carpenters' Hall by the Rev. J. Stephen Barrass, Rector of St. Lawrence Jewry, who took for his subject "The City Churches: Their History and Architecture." The Bishop of Southwark was to have presided, but in his absence the lecturer was introduced by the Master of the Worshipful Company of Carpenters.

Mr. Barrass said he proposed to consider only those churches which were in existence before the Great Fire, and their thoughts would naturally turn first to St. Paul's Cathedral. It was said the first cathedral was built in the camp of the Roman Prætorius and destroyed by Diocletian; rebuilt under Constantine, and partly destroyed by the Saxons. It was restored by Ethelbert, but in 961 was destroyed by fire. It was again re-built, but suffered considerable damage during the struggle before the coronation of the Conqueror, who, however, restored it. The building was yet again destroyed by fire in 1084, and a new one commenced by Bishop Morris in 1086 with the assistance of William. Morris worked twenty years, but only completed the foundations during that time. His work was taken up by his successors, and the walls were completed, and the external space enlarged by the removal of houses. Before the edifice was completed, however, architecture had made great strides, and the style of the building did not satisfy the builders of the period. The style was changed, and consequently various styles were found, one over the other. The churches of St. Gregory (which was known to be in existence in 1010) and St. Faith were incorporated in the building. In 1221 a new steeple was finished, and in 1240 a new choir, which contained a very beautiful rose window, was built. The cost of the building must have been enormous.

It is probable that London was divided into districts, which afterwards became parishes soon after the time of Augustine. At any rate in 1150 the parochial divisions were practically complete, and there were said to be in London and its suburbs 13 churches belonging to convents and 136 belonging to parishes. Eleven of these 13 can be traced with precision. One of these was the Priory of Holy Trinity, Aldgate, founded in 1108, to which lands were given by the old Saxon Guild of Knights. The Prior was in his own right an Alderman, but instead of wearing the red gown of the Alderman wore the purple robe of the Prior. St. Bartholomew's, Smithfield, was another of these churches. It is said that about 1120 Reheres, the founder of this church, went to Rome and visited a malarious spot three miles away, which is shown even now as the site of the martyrdom of St. Paul. He was stricken with malaria and in a vision saw St. Bartholomew. On his return to England he entered the order of the Canons Regular of St. Augustine, obtained a site from the Bishop of London, and built St. Bartholomew's, Smithfield, and also founded the hospital. There were also the Temple Church, belonging to the Knights Templars and St. Mary's, which is now known as St. Saviour's, Southwark. The Monastery of St. Martin's-le-Grand was both for antiquity and magnificence rightly named. It was first founded on a small scale; rebuilt and endowed in the reign of Edward the Confessor by two Saxon brothers, and at the coming of the Conqueror all the privileges were guaranteed and added to. The charter of the monastery conferred the right of sanctuary, which was retained in some measure until the dissolution of the monastery. Of the 126 parish churches, 109 were within the walls or within the liberties of the City. St. Mary-le-Bow was of very ancient foundation, and was the first church in London to be built on arches, which style gave its name to the church and also to the Court of Arches which sat there for many years. During the period that Cheapside was used for pageants an enclosure was erected for the accommodation of the Royal party, and on one occasion it collapsed and somebody was killed. This so enraged the King (Richard III.) that he ordered the head carpenter to be executed, but he afterwards withdrew the order. The enclosure was, however, fixed to the church afterwards, and on the rebuilding of the church by Wren he provided a gallery on the north side of the tower which remains to this day.

Others of these churches were St. Dunstan's, Fleet-street; St. Sepulchre and St. Andrew's, Holborn; St. Lawrence Jewry; St. Giles, Cripplegate; and All Hallows, Barking, now dedicated to St. Mary and All Saints, which is one of the most complete mediæval churches in London, and with the exception of the porch and dial survived the Great Fire of 1666.

LEIGHTON HOUSE, KENSINGTON.—Dr. von Steinle—son of the artist whose studio Lord Leighton entered when eighteen years old—has presented to Leighton House the picture of "The Death of Brunelleschi," which Lord Leighton painted for Steinle at Frankfurt, together with an early sketch for a picture of "The Death of Titian."

THE BUILDERS' FOREMEN AND CLERKS OF WORKS' INSTITUTION: ANNUAL DINNER.

THE annual dinner of the Provident Institution of Builders' Foremen and Clerks of Works was held on Saturday last week in the King's Hall, Holborn Restaurant, Mr. F. G. Minter presiding. There were also present among others: Messrs. G. Hubbard, Max Clarke, T. Costigan, A. Parker, E. J. Brown, H. T. A. Chidgey, Ben Carter, J. W. Stevens, J. C. Hill, Dr. Robinson, J. Stapleton, J. Beer, and F. Hann, the total number of those present being about 600.

The loyal toast having been honoured,

The Chairman proposed the toast of the evening, "The Provident Institution of Builders' Foremen and Clerks of Works." He said that the Institution was more than sixty years old, and as the oldest provident institution in the building trade it ought to be a great deal better off and have many more members. It was entirely a self-help society, and it had never refused an application which had been worthy of consideration. The men pensioners received 45*l.* per year; the women 18*l.*; and the orphans 3s. 6d. per week, and small sums were dispensed in the way of temporary assistance to those who were in difficulties—very useful help, which often enabled a man to make a fresh start. All who were in the building trade had felt and were feeling the bad times more or less, and that, of course, affected the subscriptions; still, he hoped that his appeal would be liberally responded to, and that a large amount would be collected on behalf of the Institution. The cause was a good one, and money was not wasted in management, etc. In fact, the working expenses were infinitesimal compared with the good the Institution did. Most of the work was done for love, and nearly all the money went to the object for which it was subscribed. About 600*l.* had been dispensed each year for the past two years, and the usefulness of this would be appreciated by those who knew what an uphill struggle early in life a builders' foreman or clerk of the works had. As a rule, there was little chance of putting money away as a provision for the future, especially when a man had a family round him. Until we had old-age pensions, it was the duty of those who could to help those who needed help; we never lost what we gave away. Whether the recent bad times in the building trade was the cause, he did not know, but he did not think the Institution was supported by the trade as it should be. He suggested that the Institution should try and bring the builders of London into line to help them more. He was disappointed with the result of his appeal to his brother builders, and he thought it was a discredit to the trade that more support was not given to that Institution. The appeal was made but once a year and, considering the importance of the trade to all classes of society, he thought that the Institution should receive more support. He asked them all to support the Institution and to get their friends to do the same. The Institution ought to make more progress, and he hoped that at the next dinner there would be more builders present and more large cheques received. He had known the builders' foremen and clerks of works since he was a boy, and the best men of the class were clever men, possessing ingenuity, tact, and knowledge, and they deserved all the money they earned. Their responsibility was great, and they had to please the employer, the architect, and the client. No one appreciated such men better than architects and surveyors.

Mr. J. Beer, whose name was coupled with the toast, in response, said that they had been told lately that the Institution was not actuarially sound, and that if it was submitted to valuation it would be found utterly and hopelessly insolvent. Well, they had existed for sixty years, and they had paved their way, and saved a little, and their answer was: "If we can go on paying all the demands which are made and save a little, we are not hopelessly insolvent; but if we go on paying we must ask you for your support." The revenue derived from members' contributions and from money invested did not enable them to pay the yearly demands upon the pension fund, and they had to look outside for support to enable them to continue the good work if they were

to refrain from touching the reserve fund, which they were determined not to do. They would rather reduce the payments than that, for they were determined to hand on the affairs of the Institution to those who were to follow them in a proper state. There were members of the Institution who were unable to work, who had such a regard for the Institution that they would not come upon the pension list, preferring to "rub along" than come upon the funds.

Mr. E. J. Brown then proposed "The Architects and Surveyors," and remarked that he believed that 100 years hence, at such a dinner as that, those present would be expressing admiration for the architectural works of the present time, which works were monuments to clever, painstaking men. Architects and surveyors were the friends of the builders, and of the builders' foremen and clerks of the works.

Mr. G. Hubbard, F.S.A., in responding for the architects, said he hoped that trade would improve for the sake of all of them. He thanked builders' foremen and clerks of the works for the very practical assistance they gave to architects, and especially for the practical hints which they often gave. He thought that membership of the Institution was the best form of investment for builders' foremen and clerks of works. It was our duty to make provision for old age, as we never knew what the future would bring.

Mr. H. T. A. Chidgey, in replying for the Surveyors, said he was a hearty supporter of the Institution because it did all it could for itself before it asked others for assistance. He owed a great deal to the foremen and clerks of works whom he had met.

Mr. Ben Carter then proposed the toast of "The Builders and Contractors," and in doing so referred with regret to the bad state of trade. It was difficult to say why trade remained so bad—whether it was due to the difficulties which builders and contractors were for ever having with the Building Act, or to the growing difficulty of carrying out building agreements issued by municipal bodies who were themselves sometimes builders, and who occasionally made bricks, he did not know, but he did know that what trade there was about might be made more profitable if there were a little more unanimity and organisation amongst the trade. Instead of striving to see who should be the greatest loser on a job, by organisation they might be able to make some profit. It would be more profitable to the builder, and better for the workmen, and it would meet with the approval of the merchants, who were occasionally losers by this unhealthy form of competition. It was pleasing to know that there had been no trade dispute during the past twelve months of any magnitude, and that the small disputes which had arisen had been at once satisfactorily settled by the Conciliation Board. That was all to the good, for strikes did good to no one, and after a long and expensive fight disputes were generally settled by arbitration. According to the Board of Trade returns, there was a wave of prosperity passing through the country, but he did not believe it had reached London.

Mr. A. Parker, who responded, said he hoped that the Institution would receive the full support of builders and contractors.

Mr. T. Hann then proposed "The Governors, Trustees, Donors, Subscribers, and Visitors." The Governors were Messrs. F. J. Dove, J. Howard Colls, and T. Costigan—one of the best friends the Institution ever had. They could not be too grateful to the donors and subscribers, and he was glad to announce that the subscription list showed a better result than was to be expected bearing in mind the state of trade. The total was 340*l.*, which was well up to the average. Some of the donations were: Mr. F. G. Minter, 25 guineas; the Institute of Builders, 10 guineas; and the Associated Portland Cement Company, 10 guineas. Without the help of their friends the Institution would not be able to do much.

Mr. T. C. Hill, in response, said that there were about 350 subscribers on the lists for last year, and of these some fifty odd were builders. He endorsed what the Chairman had said as to the Institution not being supported by builders as it ought to be. He suggested that the leading men of the Institution should try and get more builders to subscribe to the funds of the Institution. The Institution had paid away over 13,000*l.*, and they had a reserve of 8,000*l.*, but he should like to see that amount doubled.

Mr. H. J. Treadwell also responded, and referred to his indebtedness to the builders' foremen and clerks of works who had worked for him. He also referred to the wisdom of joining such an Institution in view of the fickleness of fortune, and he said he had reflected that if each one of those present subscribed 6d. per week towards the funds of the Institution there would be subscribed a sum of nearly 1,000*l.*

The concluding toast was "The Chairman," ably proposed by Mr. T. Costigan. The Chairman replied, and the meeting terminated.

BUILDERS' CLERKS' BENEVOLENT INSTITUTION.

THE annual general meeting of this Institution was held on the 26th ult., Mr. W. F. Wallis, of Maidstone, in the chair.

The Report and balance-sheet were presented, showing that during the past year 708*l.* had been paid in pensions, and 20*l.* as temporary relief, and 100*l.* had been placed on deposit. The total receipts had been 736*l.* in donations and subscriptions, 172*l.* in dividends, and 20*l.* balance from dinner account.

Great credit was given Mr. Howell J. Williams, the retiring President, for his substantial aid during the past year in procuring donations, etc., from master builders, merchants, architects, and surveyors. Hearty thanks were also accorded to the Hon. Auditors and Solicitors.

In moving the adoption of the Report and balance-sheet, Mr. Wallis said he considered them very satisfactory—indeed, it showed the good work of the Committee, Hon. Treasurer, and Secretary in keeping the expenses down; in his opinion, there was no institution which could show a smaller proportion of expenses in comparison with receipts. He would do all in his power to keep the Institution from going back during the ensuing year.

Mr. R. Barrett (a donor to the Institution) seconded, and the motion was agreed to.

THE LONDON COUNTY COUNCIL.

THE last meeting of the present London County Council was held on Tuesday in the County Hall, Spring-gardens, Alderman Spicer, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to lend Battersea Borough Council 2,964*l.* for paving works; and Bethnal Green Borough Council 2,945*l.* for dust-screening apparatus. Sanction was also given to Fulham Borough Council to the borrowing of 3,500*l.* for extension of town hall, and to St. Pancras Borough Council to borrowing 1,582*l.* for street lighting.

Schools.—The following recommendations of the Education Committee were agreed to:—

"That the estimate of expenditure on capital account of 6,566*l.*, submitted by the Finance Committee, in respect of the erection of a combined school for the accommodation of sixty physically defective children, and sixty mentally defective children, on the Osborn-place site (Whitechapel), be approved.

That, subject to the Board of Education approving the finished plans, the tender of J. Grover & Son, amounting to 5,983*l.*, for erecting a combined school for the accommodation of sixty mentally defective and sixty physically defective children on the Osborn-place site (Whitechapel), be accepted."

The same Committee recommended, and it was agreed:—

"That the estimate of expenditure on capital account of 27,896*l.*, submitted by the Finance Committee, in respect of the erection of a secondary school for 510 girls on a portion of the Hortensia-road site (Chelsea), be approved.

That, subject to the necessary estimates and consents, a secondary school be erected on a portion of the site in Hortensia-road (Chelsea) for the accommodation of 510 girls.

That, subject to the Board of Education approving the finished plans, the tender of B. E. Nightingale, amounting to 24,334*l.*, for erecting a secondary school for 510 girls on part of the Hortensia-road site (Chelsea), be accepted.

That the estimates of expenditure on capital account, amounting to 703*l.*, submitted by the Finance Committee, in respect of preparing and lithographing bills of quantities in connexion with the erection of a secondary school for the accommodation of 476 girls on each of the Broomwood-road (Clapham) and West Hill (Wandsworth) sites, be approved."

They also recommended, and it was agreed:—

"That the estimate of expenditure on capital account of 7,214*l.*, submitted by the Finance Committee, in respect of the erection of a school on the Rushmore-road site (Hackney, S.), to accommodate 330 junior mixed children, be approved.

That, subject to the Board of Education approving the finished plans, the tender of Treasure & Son, amounting to 6,707*l.*, for erecting a school on the Rushmore-road site (Hackney, S.), to accommodate 330 junior mixed children, be accepted."

School Sites.—The Education Committee recommended, and it was agreed:—

"That the estimates of expenditure on capital account amounting to 24,500*l.*, submitted by the Finance Committee, in respect of (i.) the acquisition of a site known as the Packington-street site (Islington, S.), for the purpose of erecting thereon a public elementary school for the accommodation of 600 children; and (ii.) the acquisition of property known as the Leighton-road site (St. Pancras, E.), also for the purpose of erecting thereon a public elementary school for the accommodation of 600 children, be approved."

Tramway Car-shed, Bow.—The Highways Committee recommended, and it was agreed:—

"That the estimate of expenditure on capital account of 6,250*l.*, submitted by the Finance Committee, be approved in respect of the purchase of a site required for the Bow tramways car-shed, and in respect of incidental expenses.

That the portion of the Grove Hall Asylum site, Bow, shown by pink colour on the plan presented to the Highways Committtee on February 7, 1907, be acquired for a sum of 6,000*l.*

Totterdown Fields Estate—Completion of Cottages on Section B.—The Housing Committee reported that 157 additional cottages, containing accommodation for 1,304 persons, have been completed on section B of the Totterdown Fields estate, and lettings are now being effected. The development of this section is now complete, 429 cottages and two shops having been erected thereon. In all, accommodation for 5,376 persons in 726 tenements has now been provided on the Totterdown Fields estate.

The Aldwych Site.—On the report of the Improvements Committee,

Sir R. Melvill Beachcroft said he should like to know whether the chairman of the Improvements Committee could give the Council any information with regard to the letting of the island site, Aldwych. It was high time the Council had a further report on the subject.

Mr. Thompson asked for information respecting the property abutting on Kingsway. What was the amount of the ground rent the Council were losing?

Sir T. Brooke-Hitching asked what was the total amount of the ground rents in the Aldwych area let during the past twelve months, and whether the total amount was not between 2,000*l.* and 3,000*l.*

Mr. William Davies, vice-chairman of the Committee, in reply, said it was a fact that land had been let for less than the amount mentioned by Sir T. Brooke-Hitching. As to the syndicate and the crescent sites, the Council's valuer was in touch with those people at the present moment. The Council had been asked to hold the matter over for a short time, with a view to the syndicate being prepared to make a definite offer of a substantial sum.

The Council adjourned till March 12.

APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

Lines of Frontage and Projections.

Brixton.—One-story shops in front of Nos. 404 and 406, Coldharbour-lane, Brixton (Messrs. Style & Winch, Ltd.).—Consent.

Fulham.—Buildings on the eastern side of Fulham Palace-road, abutting also upon the southern side of Childerley-street, Fulham (Mr. E. Avern for the trustees of the Fulham Waste Lands and Lygon Almshouses Charities).—Consent.

Hackney, North.—Two buildings on the western side of Wordsworth-road, Stoke Newington (Mr. J. H. Mellenfield for Messrs. Stapleton & Sons).—Consent.

Hampstead.—A building at No. 47, West End-lane, Kilburn (Mr. J. Buck for Mr. A. F. Lynch).—Consent.

Marylebone, East.—The erection of buildings upon the site of Nos. 158, 160 and 162, Oxford-street, abutting also upon Winsley-street, with projecting pilasters and a cornice on both frontages (Mr. J. Belcher for Messrs. Mappin & Webb, Ltd.).—Consent.

Paddington, South.—An iron and glass porch in front of No. 3, Clarendon-place, Hyde-park-gardens, Paddington (Messrs. Ellis & Baker).—Consent.

St. George, Hanover-square.—A projecting sign in front of No. 8, Hindon-street, St. George, Hanover-square (Mr. G. A. Hall).—Consent.

Strand.—Two projecting signboards in front of No. 11, Long-acre, Strand (Messrs. W. C. Windover, Turrill & Sons).—Consent.

Wandsworth.—Buildings on the southern side of Oldridge-road, Balham, to abut also upon Lochinvar-street and Caistor-road (Mr. C. H. Cartwright).—Consent.

Wandsworth.—The retention of a wooden cycle shed in the garden of "Lingmell," Putney Heath, Wandsworth (Mr. J. Henry).—Consent

Chelsea.—Buildings upon the site of Nos. 247-257 (odd numbers only) inclusive, King's-road, Chelsea (Mr. W. E. Clifton for the Venerable Archdeacon Bevan).—Refused.

Dulwich.—A parochial hall on the northern side of Townley-road, Dulwich, to abut also upon the western side of Lordship-lane (Mr. W. G. King for the Estates Governors of Alleyn's College of God's Gift).—Refused.

Holborn.—A stone landing and steps on the public way in Galen-place, projecting from the rear wall of Bloomsbury-hall, Hart-street, Holborn (Mr. W. A. Large for the London Musical Club).—Refused.

Kensington, South.—Bay windows and balconies in front of proposed buildings to be known as Nos. 11, 13 and 15, Bedford-gardens, Kensington (Mr. W. G. Hunt for Messrs. Harris Brothers).—Refused.

Paddington, South.—An addition in front of No. 154, Westbourne-grove, Paddington, and of three one-story shops at the rear, abutting upon Norfolk-road (Mr. J. A. L. Gimblette for Mr. A. Woollard).—Refused.

Width of Way.

Hackney, South.—A mission hall to abut upon Steven's-avenue and Homerton-terrace, Hackney, upon the site of Nos. 37 and 39, Homerton-terrace, and at less than the prescribed distance from the centre of the roadway of Homerton-terrace and the northern portion of Steven's-avenue (Mr. J. Hamilton for the Rev. T. Wellard).—Refused.

Width of Way and Lines of Frontage.

Peckham.—A building on the southern side of Goldsmith-road, Peckham, to abut also upon the western side of Stafford-street (Mr. J. W. Meredith for Messrs. White Brothers).—Consent.

Walworth.—A building upon the site of No. 83, South-street, Walworth, at less than the prescribed distance from the centres of the roadways of South-street and Ann's-row (Messrs. Cluttons for the Ecclesiastical Commissioners.)—Consent.

Lewisham.—Buildings upon a site abutting upon Baring-road, Cooper's-lane, and The Avenue, Grove-park, Lewisham (Mr. S. S. Dottridge for Mr. A. H. P. Iverson).—Refused.

Width of Way and Space at Rear.

Hackney, South.—Buildings on the south-eastern side of Cassland-road, Victoria-park, Hackney, westward of Brookfield-road, with a boundary fence at less than the prescribed distance from the centre of Brookfield-road, and with an irregular open space about such buildings (Mr. G. H. Lovegrove for Mr. G. S. Shaw).—Consent.

Width of Way and Construction.

Hackney, North.—The retention of four wood and iron sheds of a temporary character at the rear of Nos. 358 and 360, Kingsland-road, Hackney, at less than the prescribed distance from the centre of the roadway of Haggerston-road (Mr. G. Lethbridge for Messrs. D. Gilson & Co.).—Consent.

Uniting of Buildings.

City of London.—A modification of the provisions of sect. 77 of the Act, so far as relates to the uniting of two buildings at the corner of Upper Thames-street and Little Trinity-lane (Sir A. B. Thomas for the Stirling Telephone and Electric Company).—Consent.

St. George, Hanover-square.—An amendment of the plans referred to in the resolution of July 31, 1906, with regard to the formation of party wall openings at a motor garage, approached from Carrington-street, St. George, Hanover-square (Messrs. Pilditch & Co. for the Electromobile Co., Ltd.).—Agreed.

Space at Rear.

Bethnal-Green, South-west.—A modification of the provisions of sect. 41 with regard to open spaces about buildings, so far as relates to the proposed erection of a building on a site on the southern side of Old Nichol-street, Shoreditch, abutting also on the western side of Ainsworth-street, with an irregular open space at the rear (Messrs. Legge & Son for Mr. E. Jackson).—Consent.

Hammersmith and Kensington, North. — A deviation from the plan approved for the erection of ten houses on the eastern side of Latimer-road, Hammersmith, so far as relates to the erection of eight houses instead of ten (Mr. M. Minkler).—Consent.

Formation of Streets.

Lewisham.—A deviation from the plans approved for the formation or laying out of a new street to lead from Dartmouth-road to Sydenham-hill-road, Lewisham, so far as relates to an alteration in the cross section of such street, near its junction with Sydenham-hill-road (Messrs. Eastman Brothers).—Consent.

Lewisham.—That an order be issued to Messrs. Lemon & Blizard sanctioning the formation or laying out of new streets for carriage traffic on the Winn estate on the eastern side of Burnt Ash-hill, Lee.—Consent.

Wandsworth.—That an order be issued to Mr. J. C. Radford, sanctioning the formation or laying out of new streets for carriage traffic out of the southern side of Chartfield-avenue, Putney (for Lord Westbury).—Consent.

Wandsworth.—That an order be issued to Mr. J. B. Gripper, refusing to sanction the formation or laying out of four new streets for carriage traffic upon a site on the north-eastern side of Garratt-lane, Wandsworth (Miss E. M. Bell, Mr. C. H. Izod, and Mr. J. E. Gripper).—Refused.

Conversion of Buildings.

Deptford.—Conversion of a building at the rear of No. 7, Speedwell-street, Deptford, into a dwelling-house (Mr. C. Germer).—Consent.

Architectural Societies.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—In connexion with the Leeds and Yorkshire Architectural Society, on the 21st ult., Mr. P. A. Robson read a paper on "School and College Building." When he gave the title to his paper, he said, he was thinking of higher elementary schools, higher grade schools, secondary schools, training colleges, and the like, but he found he must put aside elementary schools with a few remarks, and speak mainly of secondary schools and training colleges; first, because elementary schools are now on a scientific and economic basis, which is well known, and, secondly, because the rules for planning secondary schools have been twice issued in a nebulous manner, which seems to imply that the subject has to find itself by gradual evolution rather than by clear directions to the promoters of secondary school buildings from headquarters. With regard to class-rooms, the lecturer remarked that left-hand light is a fetish which has been unduly glorified, and in some cases it is positively bad. In a babies' room right-hand light is preferable. He was inclined to think that the Cowper-street School, in Leeds, was the last of these very large schools to be built (although in London a school for 3,000 children has just been built under exceptional circumstances), and he added that he was sure that better educational results would emerge from smaller schools better distributed. A word as to economy in schools. This should be effected by cube rather than by area. The only gain in making class-rooms 16 ft. from floor to floor is that it is possible to get mezzanine floors off the staircases. Secondary schools will be built in increasing numbers during the next few years, because we are behind other countries in this class of building. The lecturer was inclned to think that, especially in country districts, we over-window our schools. As to ventilation, he urged that distinction should be drawn between schools in towns and those in the country, and again between those in or near manufacturing centres and those in better positions in the same district. With regard to large public schools, he recommends architects to study Christ's College, Horsham, for boys, and the Roedean School, at Brighton, for girls. The plans for the Welsh Colleges or Universities, he said, had been worthy of study, but the designs seem to him to miss the general collegiate atmosphere.—Mr. H. S. Chorley, the President of the Society, occupied the chair.

NORTHERN ARCHITECTURAL ASSOCIATION.—At a meeting of the Northern Architectural Association, held on the 20th ult., in Higham-place, Newcastle, Mr. J. T. Cackett presiding, an interesting paper was read on "Architectural Journalism," by Mr. Maurice B. Adams, F.R.I.B.A. He said the modern architect had been evolved concurrently with the growth of professional journalism; the two had developed side by side. They appeared to be inseparable, and certainly acted and reacted each upon the other. Moreover, they could not fail to acknowledge the fact that the best architecture which the world had universally recognised was erected ages before the days of newspapers or professional architects, and most of it dated long prior to the invention of the printing press. The professional journalist took a modest part in the propaganda of the hour, and furnished the architect with one of the best means of education ready to his hand. Then they must not forget that the Press had an enormous power in influencing public judgment. He dealt in an interesting way with the history of class journalism as connected with building interests, and at the close was given a hearty vote of thanks.

GLASGOW INSTITUTE OF ARCHITECTS.—The quarterly meeting of the Glasgow Institute of Architects was held on the 20th ult., Mr. J. M. Monro, President, in the chair. It was reported that a letter had been received from Mr. Keppie resigning office as a representative of the Institute on the governing body of the Glasgow School of Art in view of the likelihood of his firm being appointed architects of the new building, and that the President had been unanimously elected as the representative in room of Mr. Keppie.—A letter was read from the Royal Institute regarding the Glasgow School of Architecture examinations, intimating that if an external examiner were appointed to be present at the examinations the Institute would be prepared to accept the diploma or the senior certificate of the Glasgow School of Architecture as exempting candidates from their preliminary and intermediate examinations. The letter was remitted to the Joint Committee of the School of Architecure for consideration and report. It was reported that it had been arranged that the R.I.B.A. prize drawings and the successful drawings of the Alex. Thomson memorial student will be exhibited in the rooms, 187, Pitt-street, during the week commencing March 4.—Mr. Watson, convener of the committee appointed to consider the Glasgow Corporations proposals regarding the duties of clerks of works, reported that his committee had communicated with the allied societies regarding the duties of clerks of works in their several districts, and had received from these societies replies dealing with the subject. He further stated that his committee had now fully considered the whole matter, and that they were of opinion that the proposals of the Corporation were objectionable in general, and especially clauses four, five, and six. The meeting approved of the report, and recommended that the sub-committee be appointed to meet the Corporation's committee and explain the Institute's position.—The President stated that it is intended to commemorate the jubilee year of the Edinburgh Architectural Association by an exhibition in the rooms of the Royal Scottish Academy, Edinburgh, during July and August next. The exhibition will be limited to work executed during the past fifty years by Scottish architects, with the addition of such old or special work as the committee may consider of sufficient interest. An interesting incident will be the visit to Edinburgh of the Royal Institute of British Architects during the time the Exhibition is open. Photographs and drawings of work that has been completed will be included in the exhibition, and the committee have power to admit also exhibits of the applied arts. Architects and others who have photographs and drawings of sufficient interest should communicate with the exhibition secretary, Mr. John M'Intyre, 28, North Bridge-street, Edinburgh.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The sixth sessional meeting of the Associate Section was held in the Association Rooms, 117, George-street, on the 20th ult., Mr. John McIntyre in the chair. Mr. J. Stuart Syme read a paper on the "Military Architecture of Mediæval Buildings." The lecturer pointed out that to those who were unequipped with some knowledge of military architecture, as practised in the Middle Ages, a visit of inspection to the remains of any of our old castles was shorn of all intelligent interest. The progress of the art of fortification was sketched from the times of the Ancient Britons to the period when the use of cannon rendered the castles inefficient for defensive purposes. The lecturer showed how the castles of the Norman rulers and

their successors were developed rather from the primitive motes of both the invading and the subject races, than from the more scientific works of our earlier conquerors, the Romans. An explanation was also given of certain of the defensive features, such as curtain walls, turrets, and machicolations.—The lecture was illustrated by lantern slides.

Archæological Societies.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—A meeting of this Association was held at 32, Sackville-street, on February 20, 1907, Mr. C. E. Keyser, President, in the chair. An interesting trio of short papers had been arranged for this evening and after the exhibits, consisting of floor tiles from Holm Cultram, and a series of impressions from antique gems, had been inspected and commented upon, Mrs. Collier read the first paper, the subject of which was "John Alcock, a notable Bishop of the XVth century." A pioneer of reform in the Church, Bishop Alcock, during a life of seventy years from 1430 to 1500 held successively the Sees of Rochester, Worcester, and Ely, and his tomb is to be seen in the north-east aisle of the last-named Cathedral. Born at Beverley, in Yorkshire, educated at the Grammar School there, he proceeded to Cambridge, and about 1461 was presented to the living of St. Margaret's, Fish-street, London. Almost immediately we find him Dean of St. Stephen's, Westminster, and in the year 1462 he became Master of the Rolls; in 1468 he was made Prebendary of St. Paul's, London; and in 1470-1471 he was a Privy Councillor, President of the Council First of Edward IV., and Lord Chancellor, conjointly with Rotherham, Bishop of Lincoln, the only instance of joint tenure on record. Various other posts were held by him, and he is further distinguished as a patron of the Arts, an author, statesman, and reformer of many abuses in the Church of his day. A good discussion followed this paper, particular interest being manifested in the evidence as to gradual growth of the Reformation, and the fact that suppressions had taken place many years prior to the severance of the Church of England from that of Rome.—Mr. J. G. N. Clift then read a paper dealing with the evidence that could be adduced in favour of the use of the "Double Billet" moulding prior to the year 1100. A most keen and interesting discussion took place, in which Mr. Keyser, Mr. Tooker, and Mr. Forster all took part, and the general consensus of opinion was in favour of the contention that the double billet might be considered to have been in use at a much earlier date than that generally accepted. The next paper was one by the Hon. Secretary on "Surface Neoliths," and dealt with the question from the collector's point of view, giving many hints as to the methods of locating sites and searching for specimens. It was avowedly a paper written with the hope of interesting some members in this branch of archæological research, and was therefore somewhat elementary; it was, however, the result of practical experience, and that portion dealing with the flaking contained references to experiments on flaking of which it is hoped more will be heard when they are completed.

GLASGOW ECCLESIOLOGICAL SOCIETY. — A meeting of the Glasgow District of the Scottish Ecclesiological Society was held on the 19th ult. in the hall of St. Oswald's Church, Glasgow—Dr. Cooper in the chair.—A paper was read by the Rev. T. N. Adamson, of Broughty Ferry, on "Drontheim Cathedral and the Coronation of the King and Queen of Norway." For its northern situation the church is remarkable, larger than any Scottish example, and more richly decorated than Kirkwall Cathedral, which most closely resembles it. The different styles of various periods of erection since the eleventh century are illustrated. The description of the latest coronation is of special interest, because no official printed order of service was issued. The usage followed was one of comparatively modern institution, and in comparison with older coronation service meagre and inexpressive.—Dr. John Honeyman, R.S.A., read a paper on "The Old Arrangements in the Transept of Glasgow Cathedral," a brief report of which appeared in our last issue.

Illustrations.

MESSRS. W. H. SMITH & SON'S NEW PREMISES, KINGSWAY.

THESE premises have been erected on a site on the west side of Kingsway, are now practically completed, and preparations are being made for the occupation of same by Messrs. W. H. Smith & Son. The new buildings extend from Kingsway to Kean-street, and of this the architects have taken advantage by arranging for the delivery of goods and for the entrance for the employés in the latter street.

On the ground floor the portion next Kingsway will be arranged for and used as a large shop for retail purposes, with a side entrance giving access to the upper floors. The rear portion of this floor is arranged with "draw-in" from Kean-street, with large platform adjoining for the loading and unloading of goods.

A considerable portion of the building is to be used as an additional centre for the receiving and distributing of goods to the depôts and shops belonging to Messrs. Smith in London and the country. The basement will be used for storage purposes, and provision is also made for strong rooms and heating chamber and pump room in connexion with the warming of building and water supply.

Ample sanitary accommodation has been provided on all floors; the walls of the water-closets and lavatories are faced with glazed bricks, the partitions being formed with glazed Shepwood bricks. A large central area has been formed, the walls being faced with white glazed bricks, for the purposes of lighting and ventilating the several floors, water-closets, etc. The whole of the building, including the roof, is of fireproof construction. Two staircases are provided, and both are formed of fire-resisting materials.

The whole of the premises have been arranged to meet the requirements of the London Building Act, 1894, and the Amendment Acts, 1905, in connexion with the escape of employés in case of fire.

Electric lifts are provided for goods and passengers.

The height of the building has rendered it necessary to pump the water supply to the top of the premises; under these circumstances a combined scheme has been arranged for this, and a system of fire hydrants, these latter being fixed on all floors.

The building throughout will be heated by hot water on a low-pressure system.

The front next Kingsway is faced with Portland stone; the front next Kean-street is faced with red Leicester bricks with Portland stone dressings. The treatment next Kingsway is Renaissance in character. The whole of the ground and first floors will be fitted as shop front, and for this reason heavy details in the design of the upper floors have been avoided.

The whole of the steelwork and fireproof construction were provided by Messrs. Dawnay & Sons, of Nine Elms-lane, S.W. The pump and electric motor for the pumping of water and the fire hydrants have been fitted up by Messrs. Merryweather. The heating of the building is being carried out by Messrs. Werner, Pfleiderer, and Gerhuis, of Peterborough. The lifts have been provided by Messrs. Penrose, and these and the electric lighting are being carried out under the superintendence of Messrs. O'Gorman and Cozens-Hardy, of 8, Victoria-street, S.W., the consulting electrical engineers to Messrs. Smith.

The general contractor is Mr. B. E. Nightingale. Mr. Robert H. Kellond has acted as clerk of works. The architects are Messrs. D. Cubitt-Nichols, Sons, & Chuter.

PAINTED PANELS FROM RANWORTH CHURCH.

THESE illustrations of two painted panels in the Rood-screen of Ranworth Church are from the Tenth Volume of the Architectural Association Sketch-Book, and are referred to in an article on the Sketch-Book on another page.

The original drawings are by Mr. William Davidson.

FOUNTAIN, BRESLAU; AND GRAVE MONUMENT, HAMBURG.

WE referred last month, under the head of "Magazines and Reviews," to the illustrations of the sculpture work of Herr Hugo Lederer, which formed the subject of a special supplement of the *Berliner-Architekturwelt*, under the title *Berliner-Kunst*.

We give this week reproductions of two of the works illustrated in the *Berliner-Kunst*, a sculptured fountain at Breslau University, and a group of two figures forming a funeral monument on a grave at Hamburg.

It appears that what has given Herr Lederer his special fame at present is the colossal monument to Bismarck at Hamburg, a monument consisting of a great circular pedestal with immense mouldings and massive buttresses, supporting a smaller circular pedestal decorated with a colonnade of short stumpy columns, and carrying a statue of Bismarck, built up in courses of masonry and apparently, judging by the scale of the figures in the photograph, some 35 ft. to 40 ft. high. That this patriotic work on such an immense scale should have gained the sculptor great credit in Germany is quite comprehensible; but we should not have selected it as the best evidence of his genius; it is heavy and ungainly in general outline, and we do not think colossal figures a very happy use of sculpture.

But the fountain at Breslau, and the grave figures, here illustrated, show the hand of a true sculptor, and a thinker in sculptural form. The two figures on the grave are most pathetic in expression, and remind one of the kind of thought expressed in some of the Greek grave-reliefs, only with modern rather than Greek feeling. In the fountain the spirited nude figure of the man with the sword at the top, and the design of the crouching figures which form part of the support of the basin, are admirable. Among his other works is a fine and poetic monument to Liszt, and a nude figure entitled the "Crouching Girl" ("Kauerndes Mädchen"); an excellent piece of expressive modelling.

Herr Lederer, who is now 35 years old, was born at Znaim, Moravia. He received his first training at the local Ceramic School, where he worked as an artisan. Later on, after three years' study in Erfurt, he joined Johann Schilling's studio in Dresden, at the age of 20. Here he was engaged as an assistant, not as a pupil, and his previous practical training stood him in good stead when compared with the academic training of his fellows.

His first effort was a group of two of Lützow's horse, leading a dead comrade's charger. It is more remarkable for its modelling than for its composition, but nevertheless enjoyed great popularity from sentimental associations. His second work was still more unsuccessful in its grouping, as he selected a poetical subject which does not lend itself to plastic treatment, viz., Fate dragging mankind after her. He soon recognised that such subjects were unsuited to his art, and he did not attempt any more literary subjects. Having realised that the first principle of sculpture is, not to turn a block of stone into a certain form, but to draw form from within the block, he worked with a new object in view, and produced his "Crouching Girl," which to a great extent laid the foundation of his art.

Herr Lederer's power of judging ultimate effect is one of his most useful gifts. His sense of the nature of material has great influence on his designs, and he knows how to draw assistance from texture as well as from colour, and so to leave the effect as far as may be to Nature.

"WARREN HILL," CROWBOROUGH.

THIS house has recently been built at Crowborough. The base of the walls up to the window-sills of the ground floor is of local stone; above the walls are covered with rough cast, with Sussex oak shingles in the gables. All the windows are of oak. The roof is covered with hand-made red tiles. Messrs. Connor Bros., of Crowborough, were the builders, and Mr. Langton Dennis was the architect.

HOUSE AT CROWBOROUGH.

THE drawing we illustrate was shown at the last Academy Exhibition. The house is planned to make the most of a hilly site,

with splendid views. The entrance-hall, which does not appear on the plan, is below the drawing-room, the dining-room and kitchen being on an intermediate level, with a small loggia opening directly on to the upper garden. The materials used are local sandstone and rough cast, with hand-made tiles for the roof. The house was built some four years ago for Mr. Langton Dennis, from his own designs, by Messrs. Connor Bros., of Crowborough.

Builders' and Contractors' Column.

THE LONDON MASTER BUILDERS' ASSOCIATION.

The thirty-fifth annual general meeting of the London Master Builders' Association was held at 31 and 32, Bedford-street, Strand, W.C., on Thursday, February 21. The minutes of the last annual general meeting were read and confirmed, and the Annual Report, part of which was printed in our last issue, was adopted. The audited accounts for the year ending December 31, 1906, were submitted by the Treasurer (Mr. F. G. Rice), and were adopted, and the following officers, etc., for the ensuing year were elected:—President, Mr. F. L. Dove (Messrs. Dove Brothers, Ltd.); Senior Vice-President, Mr. William Lawrance (Messrs. E. Lawrance & Sons); Junior Vice-President, Mr. F. G. Rice (Messrs. Rice & Son); Treasurer, Mr. Leonard Horner (Messrs. Ashby & Horner); Hon. Auditor, Mr. J. Garrett (Messrs. J. Garrett & Son); Executive Council (filling vacancies resulting from "rota" retirements, etc.), Messrs. C. Ansell, H. Arthur Bartlett (Perry & Co.), A. B. H. Colls (Colls & Sons, Ltd.), Wm. Downs, J. B. Grover (John Grover & Son), James S. Holliday (Holliday & Greenwood, Ltd.), T. Holloway, J.P. (Holloway Brothers, Ltd.), H. W. Horner (Ashby & Horner), A. C. W. Johnson (W. Johnson & Co., Ltd.), Walter Lawrence, jun. (Walter Lawrence & Son), F. G. Minter, James F. Parker (Patman & Fotheringham, Ltd.), and Henry Wall (Charles Wall, Ltd.). A vote of thanks was given to the retiring President (Mr. J. W. Lorden) for the time, energy, and power he had devoted to his presidential duties during the past year.

THE UNEMPLOYED.

In his speech last week in the debate on the lack of employment, the President of the Local Government Board especially referred to the building trade. He stated that 1,300,000 men were engaged in this industry at the present time, and he referred to the large increase in the number of men who had of late years entered the trade. He said that between the years 1881-1891 35,000 men had entered the trade, whereas in the following decade the numbers were 327,000. The conditions of the trade by the use of the steam grab, however, tended, he pointed out, to the employment of less manual labour in getting out foundations, whilst, owing to the increased use of iron and steel, the engineers, boiler-makers, blacksmiths, and riveters were displacing the stone workers and bricklayers.

It is some relief to see that the President of the Local Government Board does not favour a universal system of State labour on relief works. The recognition of the right to have labour found is altogether untenable, especially when taken in conjunction with the trade union principle of a minimum wage for all workmen in any grade, whether employed willingly or out of charity.

The funds allowed to the unemployed seem already to have affected those persons willing and able to work. Thus Mr. Burns stated that wood-choppers were being converted into paupers by the competition of charity-aided institutions, and the same conditions prevailed in other industries.

We cannot leave this subject without quoting some figures given by Mr. Burns in relation to an experiment made to employ the unemployed on a scheme of afforestation. Two hundred and ninety-three men were offered employment, but only 139 accepted it; 102 men actually commenced work, fifty-six soon threw it up, and out of the 293 men only forty-six remain at work. This probably represents the true proportion of men really anxious to obtain work out of the 293 men who posed as *bonâ fide* workmen out of employ.

DEVONPORT DOCKYARD EXTENSION.

The North, or Keyham, Dockyard Extension, which the Prince of Wales opened on February 21, has been constructed at a cost of some 3,500,000*l.* by Sir John Jackson, Ltd., who began operations eleven years ago. Subcontracts were made with Easton & Co., Ltd., and the Erith Ironworks for the pumping machinery, and with the Thames Ironworks Company for the caissons. Mr. Whately Eliot was superintending civil engineer, and Sir H. Pilkington civil engineer-in-chief for the works. The 120 acres thus added to the dockyard consist for the greater part of area reclaimed from the Hamoaze and Weston Mill lake. The sea wall, 3,000 ft. long, affords berth-room with a least depth of 33 ft. of water. The enclosed basin, 1,550 ft. by 1,000 ft., has a greatest depth of 50 ft. at high water; the walls, 30 ft. thick at the base, and 55 ft. high from floor to coping, are carried down into the soil to a maximum depth of 90 ft. A pier, 75 ft. by 500 ft., projects into the basin from the north side, the quayage amounts to a total length of about 5,000 ft., the main entrance from the Hamoaze measures 95 ft. by 730 ft. Parallel with that basin are three graving-docks, their lengths being 670 ft., 740 ft., and 745 ft., with depths of water ranging from 48 ft. to 59 ft. The middle and western docks have stops at mid-distance for floating caissons (worked with compressed air) for their sub-division upon occasion, and they can be increased in length by 43 ft. by means of similar caissons. The tidal basin, 600 ft. by 740 ft., affords an area of 10 acres with wharfage of 2,100 ft., its entrance is 120 ft. wide. The main entrance into the enclosed basin is available for dry-docking purposes; its length can be extended to 57 ft. more with floating caissons against outer stops; the basin can also be entered from the harbour through a direct entrance fitted with a sliding caisson. The depth of water over the sill of the western graving-dock ranges from 32 ft. to 47½ ft. The frontage of the Government docks, depôts, etc., at Devonport, now extends nearly five miles, from Saltash Passage to North Corner, along the east shore of the Hamoaze.

THE TREATMENT OF CONCRETE SURFACES.

In a paper read before the National Association of Cement Users (U.S.A.) Mr. Linn White describes some of the methods tried for the purpose of obtaining satisfactory surfaces in the various classes of concrete work executed in the South Park System of Chicago. The author has found that good results cannot be obtained even if the moulds, concrete, and workmanship are perfect, and that imperfections still appear if the moulds are lined with sheet metal or oil-cloth. Two general methods of treatment have been adopted at Chicago, one being to remove the outer skin of mortar in which imperfections exist, and the other to use for surface finish a mixture that will not take the imprint of imperfections in the moulds and will not effloresce. In preference to bush-hammering, tooling, and scrubbing with wire brushes, the author has chiefly used the acid process to wash away the cement and expose the particles of sand and stone, the acid being afterwards counteracted by an alkaline solution and the surface cleansed with water. The only precaution necessary is that the material used as aggregate must be able to resist the action of acid. By the selection of suitable aggregates, the treated surface can be made of agreeable colour, affording a welcome relief from the tint of ordinary concrete. Mr. White says that red and black granite, sand coloured with mineral pigments, and pure white sand have been applied with excellent results in the Chicago Park System. The second method of avoiding surface defects has also been tried with a fair measure of success. Various buildings have been constructed with the outer layer of concrete mixed dry, so that no mortar could flush to the surface, the result being an even-grained, honeycombed finish of soft grey colour, which grows darker with age. As concrete of this character is distinctly porous it affords no protection for steel used as reinforcement, which must be embedded in wetter and more impervious material.

MILITARY BARRACKS.

In the Parliamentary Papers Mr. Clynes, M.P., asks the Secretary of War whether he is aware that complaints have been made that Messrs. Arundle, builders and contractors, of Bradford, have not observed the rules and conditions of work and wages in the building trade in connexion with military barracks work at Preston and Manchester.—Mr. Haldane, in reply, states that the contract with Messrs. Arundle contains the usual fair-wages clause. Special inquiries have been made with regard to the works in question carried on by the firm, and it appears that the provisions of their contract have been duly observed by them.

A LARGE DISPATCH WAREHOUSE.

The Falkirk Iron Company have recently completed at their works at Falkirk a large dispatch warehouse, measuring 300 ft. long by 100 ft. wide, with four lines of rails and two island platforms 300 ft. long by 27 ft. wide each. Accommodation is provided for over fifty wagons. This addition to the dispatch department will afford increased facilities for the rapid dispatch of goods and prompt execution of orders, enabling the Company to send away fifty wagons daily, and, by working double shifts, 100 wagons. Besides which the storing accommodation is again considerably added to, and much larger stocks are now able to be kept. A complete system of tramway rails all over the works adds to the convenient and rapid transit of goods from the various departments to the loading-shed. At their London warehouse they have recently completed improved and extended show-rooms for the display of new designs and models. Special arrangements have been made with the railway companies for the express delivery direct from works of goods for the southern and western and other districts of England.

PATENT CONCRETE STEPS.

The large block of offices lately built by the Great Western Railway Company at Bishop's-road, Paddington, have been fitted throughout with a new description of concrete step, constructed in such a way that in case any part of a step becomes worn, or the moulding broken, that particular portion of the surface of the tread can be removed simply by taking out two brass screws, and a new portion inserted in a similar way. It will be observed that this new system does away entirely with the noise, dirt, cost, and inconvenience of cutting out worn steps and fitting in slabs. The removable sections of concrete are cast in iron moulds, and sharply grooved to give a good foothold. The patentee is Mr. Robinson, General Manager to the Metallic Paving Company, Fulham.

Competition.

ASHTON-IN-MAKERFIELD PUBLIC BATHS.—Mr. William Owen, F.R.I.B.A., J.P., of Warrington, the assessor appointed in this competition, has selected the design submitted by Messrs I. C. Prestwich & Son, architects, Leigh. The competition was limited to architects practising within the Wigan and Leigh Union districts. Eight designs were submitted. The estimated cost is 6,000*l.*

BOOKS RECEIVED.

PRACTICAL WOOD-CARVING. By Eleanor Rowe. (B. T. Batsford. 7s. 6d.)

THE QUANTITY STUDENT'S ASSISTANT. By George Stephenson. (B. T. Batsford. 3s. 6d.)

THE BRASSES OF ENGLAND. By Herbert W. Macklin, M.A. (Methuen & Co. 7s. 6d.)

APPROXIMATE ESTIMATES: A Pocket-book for Estimating. By T. E. Coleman. (E. & F. N. Spon. 5s.)

THE GAS ENGINEER'S POCKET-BOOK. By Henry O'Connor. Third Edition, revised. (Crosby Lockwood & Son.)

THE GENERAL ELECTRIC COMPANY.—The company are inviting a special visit of members of the press on the 11th inst., to inspect their Hammersmith Lamp Factory. The party will be taken over the works in sections, each in charge of a technical expert, who will explain details.

Books.

Lockwood's Builder's, Architect's, Contractor's, and Engineer's Price Book for 1907. Edited by FRANCIS T. W. MILLER, A.R.I.B.A. (London: Crosby Lockwood & Son. 1907.)

THIS is the first of those annual volumes for which we look early in the year to put in an appearance. Unfortunately, a consideration of the building trade, coupled with a perusal of this edition, is not a very cheering occupation, emphasising, as it does, the fact that the state of that trade has remained stagnant for the past year, with no immediate prospect of improvement. Notwithstanding this, it is a curious fact that while builders are complaining of the prices that work can be obtained at, the cost to the client is very little, if any, less than during a time of great prosperity. This is accounted for by the cost of materials, which still remain at the figures of more prosperous times, and which, in many cases, are much increased, largely owing, we are afraid, to the operation of "corners," a state of things that certainly militates against improvement in any trade dependent upon the supply of these materials. In this edition the Editor has carefully noted these variations. The revision necessary, although comparatively little, is scattered right through the volume, and has been consistently done. Thus this work fully maintains its high reputation.

There is one matter to which we have called attention before, and that is the fact that while the prices of many specialities are quoted those of many standard manufactures are omitted. It is rather a pity that in a work so good generally the advertising pages should appear to rule the body of the work. We say "appear," as we may be wrong, but the coincidence is certainly striking. We are afraid, however, "Lockwood" is not the only work in which this coincidence occurs.

Proceedings of the Incorporated Association of Municipal and County Engineers. Vol. XXXII. Edited by THOMAS COLE, A.M.Inst.C.E. (London: E. & F. N. Spon, Ltd. 1906.)

AS IN the case of previous volumes, this record contains much information of the most useful character even to those who are not directly concerned in the work of local administration. A paper by Mr. T. R. Smith on "Kettering Waterworks" deserves special mention, as a complete and well-illustrated account of the works constructed to provide for the increased water consumption of the borough. "Engineering Notes on the Public Works of a Metropolitan Borough," by Mr. T. W. A. Hayward, Borough Engineer of Battersea, is the title of a paper dealing with architectural and engineering works of varied character. We are glad to notice that the designs of the artisans' dwellings, built for the Council are prepared by duly qualified architects instead of being left to the tender mercies of engineers' draughtsmen, as too often happens. In dealing with "Municipal Work in Scarborough," Mr. H. W. Smith gives a description of the tar-paved roads which, to our personal knowledge, have been laid with the most successful results in the borough, as well as an interesting account of the new Marine Drive encircling the base of Castle Hill. In the paper by Mr. J. A. Brodie, City Engineer of Liverpool, on "Motor Vehicles for Municipal Work," the experience is stated that, since the Motor Car Act of 1903 came into operation, the difficulty of maintaining motor-waggon wheels has entirely disappeared. This is a good sign, which we are glad to see confirmed by the testimony of Mr. A. E. Collins, City Engineer of Norwich. The last contribution to the volume is one by Mr. H. T. Wakelam, County Engineer of Middlesex, discussing the difficult problems associated with "Road Construction, Maintenance, and Improvements." It is worthy of note that the author is emphatic on the point that very much better highways generally than those at present existing can only be obtained by increased taxation throughout the country. We quite sympathise with the suggestion that manufacturers of motor vehicles ought to co-operate with highway authorities by trying to produce cars of a non-dust-raising type. Reform in this direction would be appreciated by ratepayers, and by all who make use of public highways in dry weather.

The Year's Art: 1907. Compiled by A. C. R. CARTER. (London: Hutchinson & Co. 1907.)

THIS useful publication contains the usual full information as to art institutions and societies, art sales, and directory of artists, which we have long been accustomed to find in it. The Editor writes a very brief review of "The Past Year," and Mr. E. F. Strange an article on "Applied Art in 1906." He notes, among other points, a gradual move in favour of encouraging the recognition of personal handiwork.

"Slowly, but, we believe, surely, it is being realised by those concerned that personal handiwork is worthy of encouragement—that if an artist in silver is allowed the use of his name he will put the best of himself into whatever his hands find to do. And so more and more of church and corporation plate is being committed to men who do not shirk the responsibility of having made it. The manufacturing silversmiths still hold fast, for the most part, to their ugly and obsolete conventions, and their soulless and emasculated patterns—stamped instead of wrought wherever commercial ingenuity can contrive. But the artists are establishing a rival industry, based frankly on the association of skilled workmen with trained and cultured directors, who themselves have mastered the technique of their craft and labour at it among their men. This ideal solution of a difficult problem seems now to be practically possible, and indeed is in operation with the best results."

While remarking that "we have no craftsmen capable of the extraordinary precision of execution and mastery of material displayed by M. Lalique and other enamellers of the great modern French school" (which is perhaps true), we wish he would have said something in deprecation of the taste of many of these beautifully executed works of Lalique. To our thinking many of them are in this respect execrable, and are the last things that we should wish to see imitated or admired in England.

Among the illustrations is a reproduction of a drawing of two cart-horses, one of them foreshortened, by a little boy of the age of eight, which is really remarkable. It is given as illustrating "The Art of Childhood"; but children of eight who could make such a sketch can hardly be very numerous. The moral is, however, that children should be encouraged to try; very likely many more of them could draw if it were only put into their heads to make the attempt.

Modern School Buildings, Elementary and Secondary. A Treatise on the Planning, Arrangement, and Fitting of Day and Boarding Schools. By FELIX CLAY, B.A., Architect. Second Edition, revised and enlarged. (London: B. T. Batsford. 1906.)

THIS is the second edition of a book first published in 1902. Additional matter has been included, particularly in the second part on elementary schools. The new chapters deal with fire protection, infant schools, manual training and cooking centres, temporary buildings, and the alteration and adaptation of old buildings. In fact, the second part of the book has been practically rewritten. The illustrations, 451 in number, comprise the plans of no fewer than ninety-five schools, and numerous views with examples of fittings of nearly all kinds. A special feature of the volume is the information respecting schools in America and in the principal European countries, numerous typical plans being given of such buildings. The examples of English and Scotch schools have been selected from all parts of the country, and include designs by many well-known architects. In the revision some of the cross-references have apparently been allowed to remain as in the first edition, although the numbers of the figures have now been altered; thus, on page 45 the reference to Fig. 166 is certainly wrong, and, as far as we can see, the number ought to be 73. On the same page Fig. 73 ought to be 78 or 110, on page 47 Fig. 123 ought to be 133, and on page 48 Fig. 321 ought to be 373. In the arrangement of the matter the plan has been followed of giving first a general sketch of the organisation in schools of different types and the conditions under which education is carried on, then the necessary accommodation is considered, and finally the arrangement of the buildings as a whole is described and illustrated by a series of typical plans.

Architects will find in this volume very many useful hints, not only on the grouping of rooms and their position in relation to each other, but also on the details of the fittings required in ordinary classrooms and in chemical and physical laboratories and other rooms for special classes. Altogether it is an admirable book, which can be heartily recommended to all architects interested in the designing of schools of any kind. The appendices contain the Board of Education's regulations for the planning and fitting up of public elementary and secondary schools, the rules for planning and fitting up schools for blind or deaf children, the Education Act of 1902, and the rules issued by the Scotch Education Department on the planning and fitting up of public schools. There is also a full index.

Cassell's Engineers' Handbook. By PROFESSOR HENRY ADAMS, M.Inst.C.E., M.I.Mech.E. (London: Cassell & Co., Ltd.)

THIS work, which under a different title has already passed through four previous editions, is now being issued in weekly parts. The information given is somewhat akin to that in "Molesworth" and other pocket-books for engineers, but the size of the pages and of the type are far more convenient than any of these, and the various subjects are discussed more fully, one very helpful feature being the inclusion of numerical examples and explicit directions for the use of formulæ. As the eighteen Parts so far published contain more than 400 pages, we need offer no excuse for abstaining from an attempt to discuss the enormous quantity of data to be found therein. We may, however, say that all the main branches of engineering work appear to be satisfactorily covered within the limits intended by the author, and that in our opinion the complete volume will be a really valuable and almost indispensable companion for engineers and draughtsmen, especially to those engaged in mechanical engineering.

Experiments on Hot-water Systems. By A. SAYERS, Lecturer on Plumbing, Municipal Technical Institute, Belfast. (London: Sanitary Publishing Company. 1906.)

THIS is a record of many experiments made by Mr. Sayers on small domestic hot-water apparatus, fitted up by the students of the Technical Institute at Belfast. The experiments appear to have been carried out with considerable care, and the results are certainly interesting. The system which appeared to give the best results at the draw-offs was one in which the primary flow from the boiler was connected to the expansion pipe immediately above the cylinder, while the primary turn was taken from near the bottom of the cylinder to the boiler. The cold-water supply entered the cylinder a short distance above the bottom, and the end inside was turned downwards so that the cold water entering the cylinder was spread out by contact with the bottom, and consequently did not flow in a direct stream to the expansion pipe and draw-offs.

Experiments were also made with secondary circulations, and the most satisfactory of the apparatus tested was one in which the connexions to the cylinder were as already described, while the secondary flow, 1 in. in diameter, was taken off the expansion pipe and reduced to $\frac{3}{8}$ in. in diameter after passing the draw-off, and was finally returned, not to the cylinder, but to the bottom of the boiler.

It is a book which can be heartily recommended to plumbers and hot-water engineers, and also to architects.

The Building Mechanic's Ready Reference (Carpenters' and Woodworkers' Edition). By H. G. RICHEY, Superintendent of Construction U.S. Public Buildings. (New York: John Wiley & Sons; London: Chapman & Hall. 1906.)

THIS book is one of a series which the author is preparing for the use of artisans engaged in the building trades. It is written primarily for workmen in the United States, but much of the information is equally useful for men in this country. It is rather curious that, while scantlings of floor-joists,

rafters, etc., are given, no illustrations or scantlings of roof-trusses are given, and we look in vain in the index for any reference to king-posts or queen-posts, or any other parts of such trusses. Very little care has been exercised in arranging the information. Thus, on page 154, we have hints on the following subjects:—To remove rust stains, to fit doors, to stop a hinge from creaking, to hang transomes, the height of washstands, the relative strength of timbers, whitewash, bevel of doors, astragal of sliding doors, height of chairs, and size of bedsteads. Six pages are devoted to excavation tables, and there is a good deal of other irrevelant matter which might very well have been omitted to afford space for information more germane to the subject of carpentry and joinery.

Bond in Brickwork. By ROBERT WILLIAMS, F.R.I.B.A. (London: B. T. Batsford. 1906.)

THIS is a polyglot book written by an Englishman for the use of bricklayers in Egypt. It contains sixteen plates, showing the method of bonding brickwork for walls, footings, arches, etc. The letterpress is printed in English and French at the beginning of the book, and in Arabic at the end. While there is not much that is new to English readers, the book will certainly be useful for the Egyptian artisans, for whom it has been prepared.

Drawings of Foliage and Foliated Design. By J. CARROLL. New and enlarged edition. (London: Burns & Oates.)

THE object of this book is to exercise students in outline drawing from flat examples before studying and drawing foliage from nature. The illustrations appear also to be intended to give suggestion in the adaptation of foliage forms to ornament; a photograph representation of foliage is given on one page, and on the opposite page one or two adaptations of its forms to fill definite geometrical spaces. This is in itself an excellent idea, as one of the most important requirements in design of ornament is that it should be arranged to fill a defined space in a satisfactory manner. The actual treatment shown is however, in the majority of the examples, too naturalistic to be regarded as ornamental design in the best sense, and hardly suggests the right method to the student. The conventionalising of natural forms to serve the purpose of ornament is a most difficult art, and the manner in which it may best be done depends a good deal on the nature of the material; a conventionalised spray for textile work would be, or should be, quite different from one for inlay or carving. In carving, again, a degree of naturalism may be employed which would be quite out of place for inlay. The book may, however, be useful to beginners in this branch of drawing, and the number of reproductions from actual plant forms are in themselves of value.

Five Thousand Miles in a Balloon. By F. H. BUTLER, F.R.G.S. (London: Horace Cox. 1907.)

THIS quarto pamphlet, for it is little more, contains not only some very interesting reports of various balloon voyages made by the author and others, but also a practically useful article under the title "The Aeronaut's *Vade Mecum*," containing instructions in the form of answers to questions, and a diagram of a fully-equipped balloon, showing the position and arrangement of the various valves and lines necessary for controlling the balloon. It is a very good shilling's-worth, and even those who have no opportunity or no intention of ballooning will find it interesting reading.

GRAMMAR SCHOOL, AYLESBURY.—A fund is opened for the purchase, at the price of 3,000*l.*, of the Grammar School (old) buildings and their conversion for purposes of a county museum. The school was founded early in the XVIIth century by Sir Henry Lee. The original endowment of about 8*l.* per annum was greatly augmented by Henry Phillips, who by his will in 1714 left 5,000*l.* in trust to be invested in land, with which the managers bought a manorial estate, Broughton Abbots, in the adjacent parish of Bierton.

Trade Catalogues.

WE have received from the General Electric Company a carefully compiled booklet on "Robertson" Electric Lamps. These lamps are so well known that it is unnecessary to describe them. The Company state that one of the most frequent causes of premature failure of lamps is due to the very unsteady pressure which some supply companies maintain between their mains. A table is given showing how the efficiency and the life are connected with the pressure of the supply, and useful hints are given to users of electric lamps. They also send us another booklet describing the "Robertson Wytelite" series of lamps, which are stated to give more light than the ordinary type for the same consumption of current. The bulbs are nearly spherical in shape, and the lower part is frosted. The light is thus well diffused. We have found by practical experience that these lamps blacken very little with age, and that they give a pleasant and restful illumination.

Correspondence.

ST. MARY ARCHES CHURCH, EXETER.

SIR,—Mr. Shearer in his very excellent paper (which appeared in the *Builder* of February 2) speaks of a certain Dr. Richard Walker, author of the "Sufferings of the Clergy," being presented to the living in 1704. This is not so. The author of the "Sufferings of the Clergy" was Dr. John Walker, who, I believe, was a Prebendary of Exeter. John Walker was born in 1674, he was educated at Exeter College, Oxford (B.A., 1698, M.A., 1699, D.D., 1714), and was Fellow of Exeter, 1695-1700. His *magnum opus* was published in 1714. He held the livings of St. Mary Major, Exeter, 1698-1720, and Upton Pyne, Devon, 1720-1749. He died in 1749, and was buried at Upton Pyne.

JOHN NEWNHAM, A.R.I.B.A.

SALFORD ROYAL HOSPITAL COMPETITION.

SIR,—In your issue of last week, with reference to our designs for the above (viz.—the third premiated plans), you remark: "There appears to be an oversight in the levels of the ground floor. The new wards are on the same level as the present ground floor, from which several steps rise to the level of the ground floor of the new nurses' block; but this block is shown level with the new wards, and is really several feet above them." May we ask you to correct this erroneous conclusion on the part of your reviewer. These levels are perfectly clear upon the sections, and were carefully worked out. The floor heights of the nurses' home were kept low for reasons of economy, and only on one floor (connected to the hospital buildings by a bridge) are the floors of the nurses' home and the patients' wards upon the same level. The differences in level between the new nurses' home and the old hospital are clearly indicated upon the plans by steps in the corridor of the new nurses' home.

Your reviewer also states in his criticism on the first premiated plans, with reference to the out-patients' department, that "In all the other plans the medical men have to pass through the waiting-room to reach the consulting-rooms in full view of those waiting." This is absolutely incorrect, and in the report accompanying our designs we emphasised this very important point being successfully attained.

We regret that the reports were not attached to the competitive designs to assist your critic in his task.

C. K. and T. C. MAYOR.

CHARGES FOR SLATE-CUTTING.

SIR,—Referring to the correspondence on this subject, permit me to say that the usual practice in Dublin, which, as a City and Guilds Lecturer on the subject, I always advocate, is to measure the area of slating absolutely net, and give all "extras" by lineal foot, dividing into undereaves, verges, rectangular cutting, diagonal cutting, etc., thus avoiding any dispute as to "trade allowances," and making the quantities equally applicable to any district, no matter what the local practice may be.

RICHARD COULSON.

DUTIES OF A CLERK OF WORKS.

SIR,—I would point out to your correspondent, "A Clerk of Works," that in my "Notes by a Clerk of Works," published in your issue of January 12th, I have not advocated "the employment of quite young men for the duties," but have simply made a statement of fact—that the architects are now glad to avail themselves of the increased knowledge and qualifications which the younger men are able to obtain and bring to bear upon their duties.

However, as a solution to the question he himself raises, I would now further suggest that the reason why so many of the type he advocates are now seeking employment is that their places are being filled by these younger men.

As Mr. John Davies has pointed out, this is an age of progress and of close application and study. I feel, therefore, that a clerk of works—never mind what he has been in the past, a builder's foreman or anything else—will have to attain many more qualifications than has hitherto been customary if he is going to take his place in competition with the men of the future.

W. T. B.

WHO PAYS FOR MISTAKES IN QUANTITIES?

SIR,—I shall be pleased to have the advice of some of your readers in the following case:—

A contracts with B for the erection of many buildings of various types for a lump sum. B had the quantities taken off and supplied to builders for the making-up of their estimate; but these were not guaranteed nor do they form part of the contract. Some time after the works had been in progress it was found that quantities had been taken off other plans by error instead of those mentioned in the contract. A requires the contract price left as it is, but B requires the whole remeasured. Can he force this; and, if so, who should bear the expense?

C. HENRY.

The Student's Column.

ELECTRIC LIGHTING AND HEATING.—VIII.

Electromagnetic Induction—Rate—A Wire Moving in a Magnetic Field—Dr. Fleming's Rule—The Force on the Wire—Lenz's Law—Mutual Inductance—Self Inductance—The Energy Stored in the Field—Electric Inertia—Coil with an Iron Core—Lightning Conductors.

ELECTROMAGNETIC INDUCTION.—In 1831 Faraday discovered that whenever an electric current started flowing in a circuit momentary currents were induced in neighbouring circuits. Similarly, when the current flowing in the circuit suddenly stopped momentary currents were again induced in the neighbouring circuits. This led him to investigate the effect produced by moving a magnet quickly near a coil with its ends connected with a galvanometer. He found that in this case also momentary currents were induced in the coil. In general, he found that whenever the number of the lines of magnetic force passing through a circuit alters, an electromotive force (E.M.F.) is set up in the circuit. When the circuit is surrounded by magnetic material it is found that the effects produced by given magnetising forces are much greater. The exact relation between the induced E.M.F. and the flux of magnetic induction linked with the oil was first given by Neumann. If ϕ denote the flux—that is, the total number of the lines linked with the coil—the induced E.M.F. in it is measured, using the notation of the differential calculus by $d\phi/dt$, wheree t is the time in seconds and $d\phi$ denots the small increment of the value of ϕ in the infinitesimally small time dt. In other words, the induced E.M.F. is measured by the *rate* at which the flux linked with the circuit is altering.

Rate.—Although the word *rate* is used in everyday language, the idea conveyed by it and the method of measuring it are not easily grasped. Let us consider, for example, the case of a falling body. The rate at which the space through which it has fallen at any instant is increasing is called its velocity at that instant. Hence we see that velocity is a rate. Now, the velocity of a falling body is continually increasing, and we have to consider how it is to be measured at any instant. This is done by stating the space over which it would have moved in one second provided that its velocity remained constant and equal to the true value of the velocity at the instant under consideration.

Similarly, the E.M.F. induced at any instant in a circuit is numerically equal to the number of lines of induction that would be linked with or unlinked from the circuit in one second provided that the rate of

linking or unlinking remained constant and equal to the rate at the instant under consideration. We see that if we double the rate at which the magnetic flux linked with a circuit alters, we double the induced E.M.F., and hence if the circuit be closed we double the momentary current generated in it. For instance, if we remove a magnet from the centre of a coil of wire at a certain rate, the induced E.M.F. in any relative position of the magnet and coil will be half that induced when the magnet is removed with double the velocity. When the flux of magnetic lines linked with a circuit and coming towards the spectator is diminishing, the induced E.M.F. tends to induce a current in the circuit flowing in the positive direction—that is, in the direction opposite to that in which the hands of a watch move.

A Wire Moving in a Magnetic Field.—Whenever a wire cuts magnetic lines of force an E.M.F. is induced in it. If we have a uniform magnetic field of strength H—that is, if there are H lines per square centimetre in a plane at right angles to the direction in which the magnetic lines are pointing—and if a conductor of length l cms. moves with a velocity of v cms. per second in any direction in which its length cuts the lines of force at right angles, an E.M.F., the value of which we shall denote by E, is generated in this conductor. The magnitude of this E.M.F. is given by

$$E = Hlv.$$

This follows from Faraday's law. For if the moving wire be sliding between two parallel rails joined at one end and at right angles to the field, the rate at which the flux linked with the circuit formed by the rails and the sliding wire is increasing will be the area swept out by the slider per second multiplied by the strength of the field. The unit value of the E.M.F. given by this formula, and found by making H =l = v = unity, is found to be too small for practical purposes. Hence a larger unit, called the volt, is chosen, which equals a hundred million absolute units. Hence the practical equation which is used in dynamo design is

$$E = Hlv/10^8 \text{ volts} \quad . \quad . \quad . \quad . \quad (1)$$

We see that whenever a wire cuts a magnetic line an E.M.F. equal to $1/10^8$ of a volt is set up.

Dr. Fleming's Rule.—Dr. Fleming has given a very simple rule for remembering the direction of the induced E.M.F. If we place the fingers of the right hand so that the thumb is in the direction of the motion and the first finger is in the direction of the magnetic field, then if the second finger, placed so as to coincide with the wire, be put at right angles to the first and the thumb, the second finger will point out the direction of the induced E.M.F. We shall refer to this rule as the right-hand dynamo rule. The relation between the motion of the wire, the magnetic field, and the direction of the induced E.M.F. and current is also shown in Fig. 4.

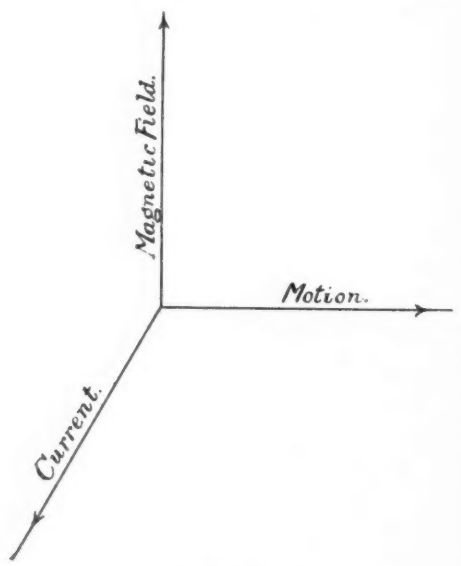

Fig. 4.

The Force on the Wire.—Let us now suppose that the current in the moving wire is C. If E be the E.M.F. induced in it, the electric power generated in it will be CE. If f, therefore, be the resultant force, measured in dynes, acting on the wire, and v be its velocity in centimetres per second, we have

$$fv = EC,$$

when all the quantities are measured in C.G.S. units. Hence we have

$$fv = HlvC,$$

and therefore

$$f = HlC.$$

In this formula C is in absolute units. If C be in amperes, we have

$$f = HlC/10 \quad . \quad . \quad . \quad . \quad (2).$$

We see that whenever a straight wire carrying a current is placed at right angles to the lines of force in a uniform magnetic field, a force acts on the wire in a direction perpendicular both to its length and to the direction of the magnetic lines forming the field. It is this principle that is used in the electric motor.

The direction of the force which acts on a wire carrying a current when placed in a uniform magnetic field can be easily remembered by the following rule, which is also due to Dr. Fleming :—Let the first finger of the left hand point in the direction of the field—for instance, away from the north pole of a magnet—the second finger in the direction of the current in the wire; then, if the thumb be held at right angles to both the first and second fingers, it will point in the direction of the force that will act in the wire. We shall refer to this rule as the motor left-hand rule.

Lenz's Law.—We have seen that whenever the magnetic flux linked with a circuit alters an E.M.F. is set up in it, and if it be closed a current will flow. The law enunciated by Lenz states that this current always tends to flow in such a direction as to prevent any change in the flux. If the flux tend to increase, for instance, the current will flow in such a way as to send an opposing flux, and so prevent this increase. If the spectator be looking towards the circuit and the flux be coming in his direction and increasing, the induced current will flow in the same direction as the hands of a watch, and the equivalent magnetic shell due to the current will consequently present a south pole facing the spectator. Similarly, if the flux be diminishing the induced current will tend to increase it.

As another example, let us consider what happens when we insert the north pole of a magnet into a ring of wire. The induced current will flow against the hands of a watch, thus producing a north pole, which will oppose the motion of the magnet and at the same time diminish the rate at which the flux linked with the ring is increasing.

Mutual Inductance.—If we have two loops of wire A and B, and if a current is started in A a momentary current is induced in B. What happens we picture as follows :—The current in A produces lines of magnetic induction, some of which will link themselves with B. Hence by Faraday's law there will be an induced E.M.F. in B so long as the current in A, and consequently the lines of induction linked with B, keep changing. The loop A is generally referred to as the primary circuit and the loop B as the secondary circuit. The induced E.M.F. in the secondary is proportional to the rate at which the flux of induction linked with it is altering. But if there be no magnetic material in the neighbourhood, this flux is always exactly proportional to the rate at which the current in the primary is altering. We see, therefore, that the induced E.M.F. is proportional to the rate at which the current is changing in the primary. If E_2 be the induced E.M.F. in the secondary, C_1 the current in the primary, and t the time in seconds, the above result in the notation of the differential calculus is expressed as follows :—

$$E_2 = M\frac{dC_1}{dt} \text{ or } E_2 = \frac{d(MC_1)}{dt},$$

where M is a constant depending on the linear dimensions of the two coils and their relative positions. We also see that MC_1 is the numerical value of the flux linked with the secondary coil.

By the principle of the conservation of energy we can show that if E_1 be the E.M.F. induced in the primary when there is a varying current C_2 in the secondary, we have $E_1 = M(dC_2/dt)$, where M has the same value as before. For this reason the constant M is called the mutual inductance between the two coils, and is a quantity of fundamental importance in electromagnetic theory. It is to be noticed that MC_2 is the flux linked with the primary coil when there is a current C_2 in the secondary. Hence the mutual inductance of two coils may be defined as the flux of induction, due to unit current flowing in one, which is linked with the other. The maximum value of the mutual inductance between two coils is when they are placed as close together as possible and in such a position that the flux due to the one which is linked with the other is a maximum. When the coils are at a considerable distance away from one another, or when their planes are at right angles, the mutual inductance is practically zero.

The value of M can only be accurately found in a few cases. We shall consider the case of a large circle of radius R concentric and in the same plane with a small circle of radius r. Let unit current flow in the large circle. The strength of the field at the centre is $2\pi/R$, and thus

$$M = (2\pi/R)\pi r^2 = 2\pi^2 r^2/R$$

approximately. If we have N_1 turns of wire in the large coil and N_2 turns in the small coil,

$$M = 2\pi^2 N_1 N_2 r^2/R.$$

If a current C_1 flow in the outer circle, the flux of induction due to this current which is linked with the smaller current is $2\pi^2 N_1 N_2 r^2 C_1/R$. Similarly, if the current C_1 flow in the inner circle, $2\pi^2 N_1 N_2 r^2 C_1/R$ will be the difference between the flux passing through the area of the inner circle and the flux returning by the area between the two circles. In practical work the C.G.S. unit of mutual inductance is too small, and thus a larger unit, called the henry, after the famous American physicist Joseph Henry, is adopted. The henry equals a thousand million C.G.S. units, and thus for the two circles we have

$$M = 2\pi^2 r^2 N_1 N_2 (R10^9) \text{ henrys.}$$

For instance, if R = 100 cms., r = 10, N_1 = 1,000, N_2 = 100, we have M = 0·00197 henry nearly = 1·97 millihenrys.

Self-inductance.—If we double the strength of the current flowing in a non-magnetic circuit, we double the strength of the equivalent magnetic shell, and we thus double the number of lines of force due to the current itself which are linked with it. In other words, the flux of induction linked with a circuit and due to the current flowing in the circuit is proportional to the current. We may therefore write

$$\phi = LC_1$$

where ϕ is the flux, C the current, and L a constant depending on the shape and dimensions of the circuit. This constant is called the self-inductance of the circuit. We see that it is equal numerically to the flux linked with the circuit when the current is unity. The practical unit of self-inductance is the henry.

If the current in the circuit alters, ϕ alters, and hence by Faraday's and Lenz's laws an E.M.F. is set up, which opposes the flow of the current. The magnitude of this E.M.F. is L(dC/dt), or, in words, it is the product of the self-inductance multiplied by the time rate of change of the current in the circuit. It is this E.M.F. which prevents an electric current from ever attaining a finite value in an infinitely short time. It is to be noticed that the greater the rate at which the current is altering the greater will be the magnitude of the self-inductive E.M.F. called into play.

Since the current flowing in the circuit is flowing against the inductive E.M.F., work is being done in the circuit. This work is stored up in the magnetic field round the circuit. At any instant the value of the work being done is CL(dC/dt), which by the differential calculus may be written

$$\frac{d}{dt}\left(\frac{LC^2}{2}\right).$$

We see that the rate at which energy is

being stored in the magnetic field surrounding the wire equals the rate at which $LC^2/2$ is increasing. Hence the energy due to the current C stored in the field is $LC^2/2$. If L be in henrys and C in amperes, the formula gives the energy in joules.

The calculation of the value of L is unfortunately one of extreme difficulty. Even in the case of a circular ring of wire L can only by lengthy mathematical analysis. If the radius of the ring be R and the radius of the cross-section of the ring be r, it can be shown that

$$L = 4\pi R\,[2{\cdot}303 \log (8R/r) - 1{\cdot}75]$$

As an example let us consider a ring of wire, the radius R of which is 20 cms., the diameter 2r of the cross-section being 2 cms. In this case

$$L = 80\pi(2{\cdot}303 \log 160 - 1{\cdot}75)$$
$$= 833{\cdot}6 \text{ C.G.S. units}$$
$$= 833{\cdot}6/10^9 \text{ henrys.}$$

The Energy Stored in the Field.—We saw in the preceding section that whenever a current C flows in a circuit the amount of potential energy associated with it and stored up in the field round the wire is $LC^2/2$ joules. We may picture the ether in the neighbourhood of an electric current to be in a state of strain. Whenever the current stops the energy stored in the ether is given back to the wire, the electric stress having been removed, and the restoration of energy is accompanied by heat, light, and magnetic effects. It is this energy that causes a spark at the switch when an electric circuit carrying a current is opened. It also gives a shock to any person opening the switch and at the same time touching the wires on each side of it.

Electric Inertia.—We have seen that the electric current in a wire cannot rise instantaneously to its final steady value, as this would necessitate the transference of a finite quantity of energy from the dynamo to the field surrounding the wire in an infinitely short time. This property of an electric current is analogous to the inertia of matter. We cannot give a finite velocity to a body absolutely instantaneously, neither can we stop it absolutely instantaneously. The initial velocity of a cannon-ball is small, although the muzzle velocity may be measured in miles per second. Similarly, the target cannot stop it instantaneously, although it may stop it so suddenly that a flash of light is seen owing to the kinetic energy having to be converted into some other form of energy in a very brief interval of time.

It is owing to electric inertia that wires connected to the house-mains may sometimes touch for an instant without blowing the main fuses. When a coil consists of many turns of wire it has large inductance, and the energy stored up in it can be very large. In this case the arc that starts between the switch contacts may burn for an appreciable time and seriously damage the switch.

Coil with an Iron Core.—Let us now consider the case when there is iron in the circuit. The flux of induction induced by a given current is no longer proportional to the current, and therefore the ratio of the flux to the current producing it is no longer constant. We see, therefore, that when magnetic materials are near a coil there is no longer a constant ratio, which we may call the inductance, and thus the formula found above for the energy stored in the circuit is no longer applicable. In this case, however, as the flux of induction is very much greater, we see that the energy stored in the magnetic field is also very much greater. If the circuit of the winding round the field magnet of a dynamo be broken when a current is flowing in it, a large flaring arc will be produced between the switch-contacts which may take several seconds to die away. For this reason the field magnet circuits of large dynamos are never broken instantaneously. They are either short circuited through the armature so that the current dies away gradually, the stored energy expending itself in heating the coils, or a resistance is inserted as a shunt across the switch, the resistance being gradually increased after the switch is opened until the current is so small that the circuit may be safely broken.

Lightning Conductors.—An interesting case illustrating the inertia of an electric current occurs when a lightning discharge passes to earth down a lightning-rod. If a thin wire be stretched parallel to the lightning conductor, the discharge will leave the conductor, preferring to go by the thinner wire, which has the less inductance. Similarly, if there be a sharp bend in the conductor the discharge will probably flash across the angle of the bend without going round it, and there will be a serious risk of the rod being broken. The property of an inductive circuit in offering great resistance to a sudden rush of electricity through it has been utilised in the design of many types of "lightning arrester." These devices are necessary in order to protect electric apparatus and machinery from damage when they are connected with overhead wires, more especially in places where thunderstorms are frequent.

WESTMINSTER CITY COUNCIL.

THE usual fortnightly meeting of the Westminster City Council was held on Thursday last week, when the following matters were dealt with :—

Asphalt Carriage-way Paving.—The Works Committee reported that the City Engineer reported that the cost of maintaining the asphalt carriage paving of Victoria-street, an area of 14,660 yd. had been as following :—1904, 3,359*l.* 11s. 8d., or 4s. 7d. per square yard ; 1905, 3,054*l.* 3s 4d., or 4s. 2d. per square yard ; and 1906, 2,504*l.* 8s 4d., or 3s. 5d. per square yard. The Committee had obtained quotations for maintaining the pavement for five years, and recommended that that of the Limmer Asphalt Paving Company of the annual sum of 1,649*l.* 5s. be accepted for a period of five years, the Council to have the opportunity of extending the contract to ten years.—This was agreed to.

Trees.—In March last the Dr. Cooper Memorial Fund Committee offered the Council a number of trees for planting in the streets subject to tablets being affixed to the trees commemorating the humanitarian work in the cause of forestry by the late Dr. Cooper, and the Committee were informed that tablets could be allowed if their dimensions did not exceed 6 in. by 4 in. The Committee stated that they could not agree to such small tablets, and as it seemed impossible to settle the matter it was agreed that it should be dropped.

Hoard Licences.—The Works Committee stated that they had received a deputation from the London Master Builders' Association with respect to the following matters :—(*a*) The Council's charges for enclosing part of any roadway or footway, and for gantries ; (*b*) the frequently disproportionate amount of deposit to amount actually required for reinstatement ; (*c*) the retention for long periods of considerable sums on deposit ; (*d*) the charges for supervision or establishment charges ; (*e*) the substitution of new pavement material for old and well-worn paving. The deputation consisted of Messrs. J. W. Lorden, E. J. Dove, J. Carmichael, W. Lawrence, and T. Costigan, the Secretary of the Association. After hearing the deputation, they instructed the City Engineer to report to them on the points raised by the deputation ; upon the Council's practice on those points, and particulars of deposits required, the actual cost deducted therefrom, and the balance returned. It appeared that the rate of deposit charge made by the City Council was higher than that which obtained in the Metropolitan Boroughs, but on careful consideration of this point and the other points raised by the deputation, they did not see their way to advise any alteration of the present arrangements made.——It was decided that the Assocaition be informed accordingly.

Paving of Piccadilly.—It was resolved that the City Engineer be instructed to proceed with the necessary paving works in connexion with the widening of Piccadilly between the Circus and Sackville-street, at an estimated cost of 6,000*l.*, to be borne by the County Council.

Wardour-street.—On the recommendation of the Highways Committee it was resolved to widen Wardour-street by the setting back of No. 103.

Obituary.

MR. WADDINGTON.—The late Mr. William Angelo Waddington was elected an Associate in 1882, and in March, 1903, a Fellow of the Royal Institute of British Architects. He was member of the firm of Messrs. Waddington & Son, of Burnley and Manchester, and afterwards, with Mr. F. B. Dunkerley, of the firm of Messrs. Waddington, Son, & Dunkerley, of Manchester and (latterly) London. Mr. Waddington and Mr. Dunkerley dissolved partnership in January last year. Messrs. Waddington & Son were the architects of the Atkinson Art Gallery and Free Library, Southport, 1877-8 ; Wesleyan Methodist Church in Abbey-road, Barrow-in-Furness ; Wesleyan new Sunday-schools, Rochdale ; Congregational Church in Ashley-road, Peel Causeway ; Methodist Chapel and Schools, Barrow, for a congregation of 790 persons and school and classrooms for 600 children, respectively, with vestries ; Wesleyan Chapel, New Hindley, Wigan, at a cost of 6,000*l.*, and the alteration and enlargement of the Wesleyan Brunswick Hall at Whitby, in 1898-9 ; and, in 1904, the Wesleyan Church in Manchester-road, Burnley, a cruciform structure after the XIVth century Gothic manner, having a tower and spire 135 ft. high, vestries and church-parlour, and containing 750 sittings, which cost some 10,000*l.* (Mr. W. A. Waddington). Of the more important plans and designs made by Messrs. Waddington, Son, & Dunkerley we may mention those for the Wesleyan Central Hall, Sheffield, an extensive scheme comprising a central hall, with smaller halls and other buildings, after the Renaissance style, at a cost of some 40,000*l.*, to accommodate 2,350 people, on the site of Norfolk-street Chapel and of adjoining premises in George-street, 1904 ; and for St. Mary's Church, Nelson, Lancashire. The firm won the second premium with their designs, out of about seventy-five sent in, for the Harrogate Municipal Offices, council-chamber, police-court, and public library, June, 1902 ; they were one of the twelve nominated out of fifty-six competitors to take part in the final competition for the Manchester New Infirmary, for 500 beds, on the Stanley-grove site, four years ago. In December, 1904, they were one of the nine chosen to join in the final competition for the Wesleyan Church House, Westminster, and in that year they were one of the six local firms who were invited to submit designs for the new Stock Exchange, Manchester. The firm's designs for those four buildings were described in our articles *passim* upon the several competitions.

MR. E. E. STREET.—The death is announced of Mr. E. E. Street, C.E. The deceased was well known in business circles in Bristol and the West of England, and had been for upwards of thirty years managing director of the Cattybrook Company.

General Building News.

NEW CHURCH, EDINBURGH.—A new chapel is just about to be added to the domestic establishment of Archbishop Smith, Edinburgh. It is situated at Greenhill, at the corner of Clinton-road, and it was at the desire of the late Marquis of Bute that the church has been erected. Some of the internal carvings come from the hands of the late W. Burgess, A.R.A. After the late Marquis had acquired the House of Falkland in 1887 (says the *Edinburgh Evening Dispatch*), the plaster designs now in the new church were fitted up in that mansion. When, however, further alterations were made on Falkland House the work was taken down and carefully stowed away. Anxiety, however, for its proper preservation led the late Marquis to provide in his settlements for the material being embodied in the new chapel for the Archbishop of Edinburgh, and accordingly they have been transferred to and engrafted upon the interior of the new structure. The plaster work is, of course, quite modern, hardly more than twenty or twenty-five years old at most. The chapel is set out on the lines of a small Byzantine church, with a central dome supported on pillars. As formerly designed the church was without apses and narthex, which were added by Mr. R. W. Schultz, of London, in accordance with the special desires of the late Lord Bute.

CONGREGATIONAL CHURCH, NEWARK.—A new Congregational Church is to be erected on a site in London-road, Newark. The exterior of the new church, which when built will complete a scheme embracing also a school hall with separate classrooms, a manse, kitchen, etc., is to be faced with a local red brick, with Ancaster-stone dressings, tracery windows, and roofs covered with Penryhn slates. The interior walls and the ceilings are to be plastered, and the whole of the interior woodwork is to be executed in pitch-pine, and the pews will be fixed on a sloping floor. The rostrum is to be raised about 4 ft. above the floor level, and the orchestra will be on a raised platform having a panelled and moulded front. The church will be lighted by gas, and will be heated by means of hot water and radiators. There will be seating accommodation for 450 persons. It is estimated that the total cost of the scheme will be about 2,900*l.* The church is to be built by Messrs. George Brown & Son, London-road, Newark, and the architect is Mr. Henry Harper, of Nottingham.

CHURCH RESTORATION, GREAT BRICET.—With reference to our account of "Church Restoration, Great Bricet," last week, we are asked to mention that the old stained glass from the original

east window was reset and restored by Messrs. W. James & Co., of Kentish Town.

SCHOOL CHAPEL, TAUNTON.—A new chapel has been erected in connexion with Taunton School. The chapel, which will accommodate about 300 persons, is designed and erected as an adjunct of the school, to which it is connected by a covered corridor. The main entrance is at the west end, and the vestibule is separated from the chapel by an oak traceried screen. There is a gallery over this portion, approached by a staircase in the bell turret on the north side. The seats in the nave and choir are arranged facing each other, and are constructed in oak, with a high dado panelling on either wall. On the other side of the choir are transepts, one used for the organ, which is placed over the heating-chamber, and the other used as a vestry, with a gallery over. The eastern end of the chapel is finished in apsidal form, with arcading pierced with eight small windows of stained glass on the upper part, designed and executed by Messrs. J. Powell & Sons, London. The lower portions of the apse floor are executed in mosaic, the nave aisle is laid in Sicilian and black marble, the steps to the chancel being of pure while Sicilian marble, executed by the Art Pavements and Decorations, Ltd., London. Electric lighting has been carried out by Messrs. Edwards & Armstrong, of Bristol; and the heating is by means of a low-pressure hot-water system, by Messrs. J. Crispin & Sons, Bristol. The whole building, which it is estimated has cost about 10,000*l*., is erected in a local red sandstone, with Guiting stone dressing, and has been carried out by Messrs. W. Cowlin & Sons, Bristol, from the designs of Mr. Frank W. Wills, architect, Bristol. Mr. E. Turner, Bristol, has acted as clerk of the works.

ELEMENTARY SCHOOL, EXETER.—A new school is being erected by the Exeter Education authority to provide increased accommodation for the elementary education of girls and infants. The building is designed to accommodate 540 children in two departments. These departments will be under separate head-mistresses; that for the infants being on the ground floor and that for the girls on the upper. The usual custom of grouping classrooms round a central hall has not been followed, as the site was not sufficiently wide. This suggested the adoption of a wide corridor as the more compact and economical plan. The corridor is 16 ft. wide on each floor, and is 66 ft. long. The contract for the new buildings, which are being erected by Messrs. Austin Westcott & White to the design of Mr. James Jerman, architect, is for 5,444*l*.

NEW DISTRICT LIBRARY, GLASGOW.—By the opening of a new library in Pollokshields the number of libraries in the district of Glasgow has been increased to thirteen. The library is constructed of red stone, and is situated at the corner of Leslie-street and Kenmure-street. The frontage to the latter street is one story in height, while that to Leslie-street, which is the main elevation, is two stories. Here there are two doorways alongside each other. One of these leads into an entrance-hall on the ground floor, to the left of which is the general reading-room, measuring 58 ft. by 27 ft., lit from the roof and from side windows to Kenmure-street. To the right of the entrance-hall is the ladies' reading-room, which measures 24 ft. by 18 ft. To the rear is the lending library, whose measurements are 49 ft. by 27 ft. From the second door in Leslie-street a stair leads to the upper floor, where there are two reading-rooms, one for boys and the other for girls. The architect for the building, which is estimated to cost about 5,000*l*., is Mr. Thomas G. Gilmour, a member of the City Engineer's staff.

GLASGOW MERCHANTS' HOUSE.—On the 20th ult. a meeting of the matriculated members of the Glasgow Merchants' House was held to consider plans of proposed alterations on and additions to the Merchants' House Buildings. Dean of Guild Mason, who presided, explained that the directors had devoted much time and attention to the question of the improvement of the buildings, the unsatisfactory nature of the hall having led to the subject being entertained. Originally they had a scheme whereby the buildings would be improved, without increasing the rental, at a cost of 10,000*l*. They could not see their way to recommending that scheme, however, and it fell through. The subject cropped up again, and he was authorised by the directors to look into the matter in conjunction with Mr. J. J. Burnet, architect. The result was the sketch plans which had been submitted. He did not say they were final. The buildings would be heightened, more letting space would be afforded, hoists provided, and some alteration would be made in the means of access. The architect estimated the cost at about 20,000*l*. On a vote, the motion to proceed with the work was carried by forty to sixteen. The sketch plans, which were approved, provide for the raising of the buildings by three square stories. Alterations are to be made on the structure of the hall with a view to improving its acoustics. Messrs. John Burnet & Son, Glasgow, are the architects.

Stained Glass & Decoration.

VESTRY SCREEN, PARISH CHURCH, THIRSK.—In the Thirsk Parish Church a vestry screen of Odessa wainscot oak with tracery carved panels has been erected. The work has been carried out by Messrs. M. Westwick & Son, builders and contractors, Thirsk, to the designs of Mr. C. Hodgson Fowler, Durham.

Sanitary and Engineering News.

NEW DRY DOCK, MANCHESTER.—The Manchester Dry Docks Company have opened a new graving dock, measuring 425 ft. by 65 ft. The company now possesses four docks, the largest 535 ft. in length and 65 ft. wide, and the smallest, a pontoon, 260 ft. by 63 ft.

SEWER VENTILATION.—At the meeting of Kensington Borough Council, on Tuesday, the Public Health Committee reported that the Medical Officer had informed them of the receipt of complaints of offensive smells emanating from the ventilating openings connected with the new relief sewer of the London County Council serving the northern portion of the borough. These complaints had been confirmed by the district sanitary inspectors. In September last similar complaints were made and as a result of representations to the London County Council all the surface ventilators on the sewer were temporarily closed. It would appear that during the recent cold weather these ventilators were reopened. The Committee had given directions for a communication to be sent to the Spring Garden authorities urging that the ventilators be again closed. The report was adopted.

Foreign.

GERMANY.—"A Handbook of Civil Art Antiquities in Germany" is the title of an important work just published by Heinrich Bergner. The first volume deals with the dwelling-house, monastery, palace, castle, fortress, peasant dwellings, and public buildings. The second volume with public gardens, woodwork, mural painting, furniture, decoration, weapons, inscriptions, and pictures. It is the German Viollet le Duc, with this difference—that it does not suffer from the prevalence of the author's personal opinions, and it is not as much cut up into single paragraphs arranged alphabetically. An important advantage the German publication possesses is that it includes many more allied subjects besides referring to northern monuments.——In the spring of 1906 the town of Cassel announced a competition for designs for two bridges over the Fulda. The bridge in each case was to be of one span, 83 m. for the one, and 73 m. for the other. Although there is nothing out of the way in these spans, other conditions presented considerable difficulties which were solved in a highly satisfactory manner by most of the forty-two designs sent in. The first prize for the Hafenbrücke was won by Messrs. Louis Eilers, engineer, and Johann Roth, architect, while the design of Herr Marschall, architect and engineer, for the Fuldabrücke was purchased, though no prize was awarded.——The publication of *Blätter für Architectur und Kunsthandwerk*, hitherto published on commission by Mr. Max Spielmeyer, of 98, Wilhelmstrasse, Berlin, has been transferred to a limited liability company, and the office moved to 46, Steinmetzstrasse, Berlin, W. The task of editing remains as heretofore in the hands of Mr. Paul Graef.

SOUTH AFRICA.—The East London Town Council have decided to erect new market buildings at a cost of 25,000*l*.——A building is to be erected in Cape Town at a cost of 23,000*l*., to accommodate the new head office of the Southern Life Association.——The Krugersdorp Town Council have under consideration a scheme for the erection of a town hall and municipal offices, at a cost of 14,527*l*. A local tender has been received, but the matter is to be dealt with in open council.——The Durban Town Council recently met to discuss the question as to what material the new town hall was to be built with. The local architects having memorialised the Council against a stucco front, and desiring that the building should be to a certain extent cut down, and that the portion to be erected should be entirely in stone. The Council in the end referred the matter back to the committee to ascertain what portion of the building could be completed in stone for the amount of the contract, 237,000*l*., it being pointed out that the Council did not at present require all the accommodation which would be provided if the whole scheme were at once completed.

WATER TOWERS AT MOSCOW.—In a voluminous report by Mr. Simin, formerly Chief Engineer of the Moscow Water Department, particulars are given of the two water-towers built at Krestovsky in Moscow for the purpose of supporting covered service reservoirs in connexion with the ground-water supply derived from the Mitisky district at a distance of about ten miles. As no high ground exists on the northern side of the city it was necessary to provide a head by artificial means, the water being pumped from the two mains, of 30 in. and 24 in. diameter respectively, to the elevated reservoirs. The two towers are identical in dimensions and construction, and are connected by a steel bridge spanning the main highway passing between them. Each tower is circular in plan, having the maximum diameter of 82 ft. and the total height of 129 ft. The foundations, 14 ft. deep and resting on sand, comprise a bed of mass concrete 2 ft. 6 in. thick, on which are circumferential and radial brick walls 11 ft. 6 in. high. The superstructure, containing six stories, is about 90 ft. high to the bottom of the reservoir, which is built of steel and is 60 ft. in diameter by 20 ft. deep. The outer brick wall of the tower, 6 ft. thick at the bottom and 3 ft. thick at the top, is continued to a higher level than the the top of the reservoir and covered by a conical steel roof. All the rooms in the tower are devoted to the use of the waterworks department, and the tower is warmed throughout by furnace-heating system by which the various offices are maintained at a comfortable temperature and water in the reservoir is kept from freezing. During the first winter in which the heating apparatus was brought into use, cracks were noticed in both towers in parts where the flues passed near the outer walls, and, as the result of careful measurements, it was found that the cracks opened to the extent of 1 in. at times when the difference between the interior and exterior temperature was about 104 deg. Fahrenheit. The effect of this difference would naturally be to cause expansion of the masonry at the inner side and contraction of that at the outer side of the wall. Taking the diameter of the wall at 72 ft., and the coefficient of expansion for bricks at 0·0000035 per deg. Fahrenheit, the total expansion for the maximum temperature difference would be $226 \times 12 \times 104 \times 0{\cdot}0000035 = 0{\cdot}99$, or practically 1 in. as measured. As the corresponding stress is beyond the tensile resistance of brick masonry, cracks were unavoidable in the absence of expansion joints, but they do not appear to have been attended with detrimental effect upon the stability of the structures, and close up in summer-time when the heating apparatus is not employed.

Miscellaneous.

THE HIGHEST CHIMNEY SHAFT.—A few years ago the highest chimneys in the world were those at Port Dundee, Glasgow, with the height of 488 ft., and one at Freiburg, Saxony, with a vertical flue 453 ft. high in addition to flues rising through a hill 259 ft. above the works, thus making the chimney top 712 ft. higher than furnace level. These giant shafts are destined to be overtopped by a chimney which is projected by the Boston and Montana Mining Company of Montana, U.S.A. The chimney is designed for the height of 506 ft. from the upper surface of the foundations and the internal diameter of 50 ft. at the top. Destined to stand on a site some 3,500 ft. above sea-level, the chimney will be exposed to strong gales, and it is estimated that the maximum pressure at the foot due to the weight of brickwork and wind pressure will be not less than 21 tons per square foot. The foundations will rest upon rock, and are to be formed of concrete walls 30 ft. high, with an external diameter of 90 ft. The minimum pressure on this part of the structure will be about 7 tons per square foot. If more draught should be found necessary, the shaft will be lengthened by an additional height of 60 ft., but as its capacity is calculated for a discharge of 4 million cubic ft. of gases per minute with the maximum temperature of 600 degrees Fahr., it is not improbable that the height at present contemplated will be found amply sufficient.

THE STRENGTH OF GRINDSTONES.—In the old-fashioned times when grindstones were almost exclusively turned by hand at the rate of about fifty or sixty revolutions per minute there was no special reason for inquiry into the tensile strength of the material of which they were made. To-day, when grindstones are run at high speeds disruption may lead to serious consequences. The results of some recent tests point to the conclusion that when a grindstone is wet its resistance to tension is appreciably less than when it is dry, quite apart from the fact that the water absorbed has the effect of increasing the centrifugal force developed when the stone is in motion. By way of illustration, we quote two experimental results. One relates to a quality of stone breaking under the tensile stress of 146 lb. per square inch when dry, and of only 80 lb. per square inch when wet. The other

refers to a sample that was ruptured at the tensile stress of 186 lb. per square inch when dry, and of 116 lb. when saturated with water. As the reduction of strength here exhibited amounts to more than 40 per cent. it is evidently a factor that should not be overlooked by those who manufacture and use grindstones.

CAMBRIDGE UNIVERSITY ASSOCIATION.—The Executive Committee of the Association, formed seven years ago, have just framed a summary of the more pressing needs of the University in the matter of buildings, income, and endowments for the many departments of art and learning, education and research. As regards the buildings they state that about 1,200*l.* per annum is needed to provide a school of architecture; 20,000*l.* for the school of agriculture and forestry (a sum of 12,000*l.* being already promised towards the building fund); 13,000*l.*, or more, for a reading and reference room, and bookcases for the University library; 12,500*l.* for the new wing, with laboratory equipment, on the physics side; 10,000*l.* for the rebuilding and fitting, upon a greatly extended scale, of the engineering workshops, which are very old and too small, whilst further provision of buildings and apparatus is necessary for purposes of research; 25,000*l.* for a museum of archæology and ethnology upon a site already assigned by the University; 20,000*l.* for completing the medical schools; 10,000*l.* for additional laboratory accommodation on the physiology side; and 2,800*l.* to complete the equipment of the Sedgwick Museum of Geology. The committee, moreover, set forth that provision is required for a new museum of zoology; lecture-rooms, with library and museum of models, on the mathematics side; a large extension of the existing chemical laboratory; lecture-rooms and library on the moral science side; and lecture-rooms and the housing of the Seeley Memorial Library on the history side. It is estimated that in all a capital sum of, say one and a half million sterling, apart from any question of a professors' pension fund, could without extravagance be immediately expended upon the equipment of, and on the provision of staff for, the University, where have been educated over three hundred of the present professors and lecturers at other universities (as distinct from university colleges) in the United Kingdom alone, and where more than 3,300 students are now in residence.

NATIONAL PICTURE COLLECTIONS. — Recent acquisitions made by the Trustees of the National Portrait Gallery include portraits of John Constable, drawn by Maclise, and of Balfe, probably by Rothwell, and a medallion likeness executed by S. Brown, in 1807, of Boulton, the engineer—these being obtained by purchase; and, as gifts, a bronze cast from the medallion by C. Prætorius of W. T. Best, organist and musical editor; a copy, executed by H. Allen, and given by the Garrick Club committee, of Millais' portrait of Sir Henry Irving; and George Richmond's portraits of Charlotte Brontë, bequeathed by her late husband the Rev. A. B. Nicholls, and of G. Gathorne-Hardy, first Earl of Cranbrook. The design for Fred Walker's poster of "The Woman in White" has been deposited in the Tate Gallery at Millbank, where are his "Vagrants" and "The Harbour of Refuge."

WORCESTER AND DISTRICT MASTER BUILDERS' ASSOCIATION.—The annual dinner of this Association was held at the Star Hotel on the 19th ult. The President (Mr. J. Stokes) was in the chair, and there were present also the Mayor (Mr. G. Williams King), Messrs. J. Dallow (Birmingham, President of the Midland Centre), F. Amphlett (Secretary of the Midland Centre), A. G. White (General Secretary), T. Caink (City Engineer), W. Phelps (Secretary), and many others. Mr. H. Stokes submitted the toast of "Success to the Midland and Local Federation of Master Builders," and referred to a statement of Mr. Sharman Wood, their ex-President, at the last dinner, that he thought that if disputes and difficulties were referred to the Conciliation Board they would not have strikes. As far as the local Association was concerned, continued Mr. Stokes, that prophecy had been fulfilled. In Worcester there had been no reduction in the rate of wages, and they had had, for the first winter in their history, such working hours as were just and convenient, and, above all, the working hours were what were right between man and man. Referring to the Trades Disputes Bill, he suggested that the Bill should be called "the trade unions cannot do wrong Bill." It was the power which was behind the precious Bill which all traders opposed. Those were the forces to which that best of all possible Governments had had to bow the knee, with such a travesty of all that could be called by the name of justice, fairness, and equity. Mr. Amphlett also responded, and said he considered the most important work that had been accomplished during the year was the appointment of a secretary to give his whole time to the federation, and in the formation of the conciliation boards. In his opinion those boards would do a great deal to prevent recurrences of strikes and lockouts. The federation were also formulating an important scheme for covering the liabilities of employers under the Compensation Act. Mr. A. E. White, also responding, said he did not wish to deprecate the work they had done in the past, but he thought they would agree with him that they were not so strong as they ought to be. Mr. Phelps also spoke. The Chairman proposed "The Mayor and Corporation," to which the Mayor replied. Mr. J. J. Wood submitted the toast of the "Architects and Surveyors," and said that he hoped the time was not far distant when the architects would agree to always use the form of agreement which had been approved by the leading bodies of the two trades. Mr. Barker, responding, spoke in appreciation of the kindly feelings that existed between the architects and surveyors and the builders. Referring to Mr. Wood's remarks as to the contracts, he said that he had never known a local builder, and only one who lived in London, refuse to sign his contracts, as containing anything unfair to the builder. If, however, the builders combined and refused to accept any contract which did not contain a clause to the effect that if any difficulties arose they were to be referred to an arbitrator, such clauses would have to be inserted. He hoped the time was not far off when architects and surveyors would join together and claim the position and privileges they were entitled to as a profession. Mr. Pike proposed the health of the Chairman, which was given with musical honours, and Mr. Stokes replied.

WAR MEMORIAL, WARRINGTON.—On the 21st ult. a war memorial to Lieut.-Colonel O'Leary and the members of the South Lancashire Regiment was unveiled in the Queen's-gardens by General Sir Redvers Buller, V.C. The memorial takes the form of a bronze statue of the late Lieut.-Colonel O'Leary. The statue, standing about 8 ft. high, is on a pedestal 8 ft. 11½ in. high, and is composed of three Norwegian granite flags. There is a bronze on the face of the pedestal giving the names of the men who died in South Africa. Mr. Alfred Drury, A.R.A., was the sculptor.

THE "AULD BRIG" AT AYR.—The Works Committee of Ayr Town Council met on the 18th ult. to consider certain questions relative to the preservation of Ayr Auld Brig. Mr. Oswald, of Auchincruive, Convener of Ayrshire, and Chairman of the Public Committee who have undertaken to carry out the preservation works, and Mr. Wilson, of Messrs. Simpson & Wilson, C.E., Glasgow, who are the engineers of the work, were present. Mr. Oswald stated that his Committee had on hand for the preservation of the bridge 9,500*l.*, and that they had still to receive subscriptions from the colonies and elsewhere. His Committee had authorised him to give a guarantee to the Town Council that the 10,000*l.* stipulated for would be raised by the end of next month, and he gave that guarantee. Mr. Wilson stated that he had no doubt the work could be carried out for 10,000*l.*, and within the two years agreed on. When the work was finished, he was satisfied that the bridge would be in a sound condition, and secure for public traffic for the future. In reply to a question, Mr. Oswald stated that he had no doubt his Committee would give a guarantee to finish the work on the bridge, even although the estimated cost of 10,000*l.* was exceeded. After discussion by the Committee, it was moved by Mr. J. B. Fergusson, seconded by Treasurer Hunter, and unanimously agreed to, that the meeting, having heard the statements of Mr. Oswald and Mr. Wilson, recommend the Town Council to accept the Burgh Surveyor's report of 5th curt. as a sufficient compliance with No. 6 of the agreement of January 9 last year, and, as the raising of the 10,000*l.* was now assured, they recommend the Council to hand over the bridge to the Preservation Committee to carry out the necessary works in terms of the agreement of January 9.

CHURCH BUILDING SOCIETY.—The Incorporated Society for Promoting the Enlargement, Building, and Repairing of Churches and Chapels held its usual monthly meeting on the 21st ult., at the Society's house, 7, Dean's-yard, Westminster Abbey, S.W., the Rev. Canon C. F. Norman in the chair. Grants of money were made in aid of the following objects, viz.—Building new churches at Old Trafford, St. John, near Manchester, 60*l.* for the first portion; Birchfield, St. Matthew, Staffs, 200*l.* in lieu of a former grant of 50*l.*; and Southfields, St. Michael and All Angels, Surrey, 160*l.* in lieu of a former grant of 120*l.*; and towards enlarging or otherwise improving the accommodation in the churches at Bradeley, All Saints, near Stafford, 30*l.*; Dengie, St. James, near Southminster, Essex, 10*l.*; Shefford, St. Michael and All Angels, Beds, 15*l.*; and Worlington, All Saints, Suffolk, 20*l.*, making in all 60*l.* A grant was also voted from the Special Mission Buildings Fund towards enlarging the Mission Church of St. Aidan, Stratford, Essex, 40*l.* The following grants were also paid for works completed:—Ilford, St. Alban, Essex, 200*l.*, on account of a grant of 1,000*l.*; Great Bricet, St. Mary and St. Lawrence, near Ipswich, 20*l.*; Upleadon, St. Mary, near Newent, Glos., 20*l.*; Tunstall, St. Chad, Staffs, 40*l.*; and Allonby, near Maryport, 20*l.* In addition to this the sum of 242*l.* was paid towards the repairs of twenty-four churches from trust funds held by the Society. The Annual General Court will be held on Thursday, May 16, at 3 p.m., at the Church House, when the chair will be taken by the Archbishop of Canterbury, President of the Society.

BRIDLINGTON MASTER BUILDERS' ASSOCIATION.—On the 14th ult. the annual dinner of this Association was held at the Chevron Restaurant. The president (Mr. A. Bailey) presided, and Mr. W. Dodgson (Vice-President) acted as vice-chairman. The guests included the Mayor (Alderman Sawdon, J.P.) and the Deputy-Mayor (Councillor G. Rennard). The toast of "The Master Builders' Association" was given by Mr. E. M. Darnley, Hull, and responded to by Mr. W. Hoggard. Mr. F. Kneeshaw proposed "The Architects," Mr. J. Earnshaw, Mr. T. Martindale, and Mr. W. S. Walker responding. Mr. Joseph Sheperdson gave "The Borough and Trade of Bridlington," to which Councillor G. Rennard replied.

NEW CROSS INSTITUTE, S.E.—The Goldsmiths' Company announce their intention to contribute the sum of 8,000*l.* which is needed for the completion of the new wing of the institute, lately renamed as the "University of London, Goldsmiths' College," at New Cross, which the Company presented to the Senate of the University of London in June, 1904. In September of last year the Senate adopted the plans and designs of Mr. Reginald Blomfield for the erection of an art school and a large day training college for elementary school teachers, as part of a comprehensive scheme for developing the scope and purpose of the foundation. The present buildings, opened on July 22, 1891, by the King and Queen (then Prince and Princess of Wales), were designed, for their greater portion, by Mr. J. Wornham Penfold, architect and surveyor to the Goldsmiths' Company, as a technical and recreative institute, being the first polytechnic established in South London. The Company had acquired, in 1889, the buildings and grounds, covering in all an area of seven acres, of the Royal Naval School (1843), upon the removal of the latter to Eltham, and expended a capital sum of about 120,000*l.* in altering the school premises and in providing new buildings, workshops, plant, and equipment for the institute, which they, whilst possessing no educational trust funds, endowed and maintained out of their own private and unaided resources. The college was reopened on September 29, 1905, by Lord Rosebery, as Chancellor of the University of London, a delegacy having been appointed by the Senate for its conduct under the changed conditions introduced by the operation of the Education Act for London.

KENSINGTON PALACE AND STATUE OF WILLIAM III. OF ORANGE.—A committee, consisting of Sir Aston Webb, Mr. Harcourt (First Commissioner of Works), and Lord Plymouth, appointed by the King, have recommended—and the King has confirmed the suggestion—that the statue of King William III., which the German Emperor will present to the King for the nation, should be erected in front of Kensington Palace, on the south side. The site is an appropriate one, for William III. bought from the Earl of Nottingham the mansion at Kensington gravel pits to which Wren added the upper story, and which became the palace (and the death-place) of William and Mary, Queen Anne and her consort, and George II.

PRIZE FOR INDUSTRIAL HYGIENE.—The Council of the Society of Arts are prepared to award, under the terms of the Benjamin Shaw Trust, a gold medal, or a prize of 20*l.* The medal, under the conditions laid down by the testator, is to be given "for any discovery, invention, or newly-devised method for obviating or materially diminishing any risk to life, limb, or health, incidental to any industrial occupation, and not previously capable of being so obviated or diminished by any known and practically available means." Intending competitors should send in descriptions of their inventions not later than December 31, 1907, to the Secretary of the Society of Arts, Adelphi, London, W.C. Such descriptions may be sent in under the inventor's name, or under a motto, accompanied by a sealed envelope enclosing the name, as preferred. The judges will be appointed by the Council.

Legal.

A QUESTION OF CUSTOM.

AT Clerkenwell County Court, on Friday last week, Henry Francis Brooks, timber merchant, of Harvey-road, Hornsey, sued F. B. Colwill, builder, of Dallas-road, Hendon, for 7*l.* 18*s.* 5*d.* as the balance due upon goods sold and delivered.

Plaintiff said he executed to defendant's order certain joinery work. Subsequently de-

LEGAL,—*Continued on page* 280.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointments, xx.; Auction Sales, xxxiv.

Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

*** It must be understood that the following paragraphs are printed as news, and not as advertisements: and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.

Competitions.

* MARCH 9.—**Wimbledon.**—SCHOOL.—The Wimbledon Education Committee invite designs for a new Elementary School in Pelham-road, Wimbledon, to accommodate 1,000 children. Architects to send their names to Mr. A. Steele Sheldon, Clerk to the Committee, 12, Queen's-road, Wimbledon, with a short statement as to their qualification and experience in similar work, on or before March 9. The author of the design placed first will be paid a premium of 150*l.*, to merge in the usual commission upon his appointment to carry out the work. Premiums of 100*l.* and 50*l.* for designs placed second and third respectively. Not more than fifteen architects will be selected to take part. Three months will be allowed for the preparation of the necessary drawings.

APRIL 2.—**Sheffield.**—MODEL COTTAGE.—Yorkshire and North Midlands Model Cottage Exhibition, Firth Park, Sheffield, 1907 (under the auspices of the National Housing Reform Council). The last date for sending in plans in the cottage competitions will be April 2. The ground will be open for building on April 15. Gold, silver, and bronze medals will be awarded in each of the three classes for the best cottages. Copies of the site plan can now be seen at the office of the Town Clerk, Town Hall, Sheffield. Full particulars will be sent by post on application to the Organising Secretary, Mr. Henry R. Aldridge, 45, Bank-street, Sheffield.

APRIL 2.—**Walker.**—MODEL COTTAGE.—North of England Model Cottage Exhibition, Walker, Newcastle-upon-Tyne, 1907 (under the auspices of the National Housing Reform Council). The last date for sending in plans in the cottage competitions will be April 2. Gold, silver, and bronze medals will be awarded in each of the four classes for the best cottages. Copies of the site plan can be seen at the office of the City Property Surveyor, Town Hall, Newcastle-upon-Tyne. Full particulars will be sent by post on application to the Organising Secretary, Mr. Henry R. Aldridge, Burt Hall, Newcastle-upon-Tyne.

APRIL 30.—**Wednesbury.**—PUBLIC LIBRARY.—Wednesbury Free Libraries Committee invite designs in competition for a public library. The competition is open to all architects resident or who have offices within a radius of fifty miles from the Wednesbury Town Hall. Premiums of 50*l.*, 30*l.*, and 20*l.* will be paid to the authors of the designs placed respectively first, second, and third in order of merit. The conditions of competition, plan of site, and other information may be obtained on application to Mr. Thos. Jones, Town Clerk, Town Clerk's Office, Town Hall, Wednesbury. Designs to be sent, carriage paid, on or before April 30.

MAY 17.—**Birkenhead.**—LIBRARY.—Birkenhead Corporation are prepared to receive competitive designs for the erection of a new central public library on a site fronting to Market-place South and Albion-street, Birkenhead. The competition is confined to architects practising within the borough. A block plan of the site, together with a printed copy of the particulars, instructions, and conditions of competition for the guidance of competing architects, will be supplied to intending competitors on application to Mr. Alfred Gill, Town Clerk, Town Hall, Birkenhead, upon payment of the sum of 1*l.* 1s. An assessor appointed by the Corporation will report to the Corporation upon the designs and estimates submitted. Subject to the conditions of the competition, premiums of fifty, thirty, and twenty guineas respectively are in the order of selection offered to the authors of the three designs and plans (if any), which, in the opinion of the assessor, merit premiums. All designs are to be delivered in such manner as not to disclose the identity of the author, in one package, marked "Central Library Competition," at the Town Clerk's Office, Town Hall, Birkenhead, not later than 4 o'clock p.m. on May 17.

Contracts.

BUILDING.

MARCH 2.—**Alnwick.**—ADDITIONS TO BANK.—Proposed alterations and additions to Messrs. Barclay & Co.'s Branch Bank at Alnwick. Names to Messrs. Hicks & Charlewood, architects, 67, Westgate-road, Newcastle-on-Tyne, on or before March 2.

MARCH 2.—**Alnwick.**—FARM BUILDING.—The erection of a new farm onstead, at Broome Park, for Captain Burrell. Names to Mr. Wm. Robson Hindmarsh, architect and surveyor, 59, Bondgate Within, Alnwick, on or before March 2.

MARCH 2.—**Salford.**—WORKSHOPS.—Salford Electricity Committee invite tenders for the erection of workshops and offices at their Mains Depôt, Frederick-road, Broughton. (No brickwork required.) Plans, specification, and form of tender can be obtained on application at the office of the Borough Electrical Engineer, Frederick-road, Pendleton. Sealed tenders, endorsed "Tender for Erection of Workshops and Offices," to be delivered at office of Mr. L. C. Evans, Town Clerk, Town Hall, Salford, on or before March 2.

* MARCH 4.—**Brighton.**—SCHOOL.—The Roedean (Junior House) School Site and Buildings, Ltd., invite tenders in all trades for the new Junior House School, between Brighton and Rottingdean. Builders desirous of tendering are requested to send their names, together with references, to the architects of buildings recently erected by them, on or before March 4, to the architects to the Company, Messrs. John W. Simpson & Maxwell, Ayrton, 3, Verulum-buildings, Gray's-inn, W.C.

MARCH 4.—**Netherton.**—COTTAGES.—Erection of four cottages at Netherton, near Huddersfield. Name and address to Mr. James H. Hall, architect and surveyor, Fartown, not later than March 4.

MARCH 4.—**Tarves.**—SCHOOL WORK.—The School Board of Tarves invite tenders for the mason, carpenter, slater, plasterer, and painter works of enlargement and renovation of the schoolmaster's house at Barthol-Chapel. Plans and specifications may be seen with Mr. James Cobban, architect, Haddo House, and sealed tenders to be lodged with him on or before March 4, at 10 o'clock.

MARCH 7.—**Kelso.**—HOUSE.—For the mason, joiner, slater, plumber, and plaster and cement work of a new house for the head forester at Bowmont Forest, near Kelso, and also for a water supply for the same. Plans and specifications can be seen at Bowmont Forest Sawmill, and forms of tender obtained on application to the Chamberlain to His Grace the Duke of Roxburghe, with whom tenders must be lodged on or before March 7.

* MARCH 7.—**Leavesden.**—BOILER-HOUSE.—The Guardians of St. Pancras invite tenders for erection and completion of boiler-house, together with boiler seatings and flues, at the St. Pancras School at Leavesden, near King's Langley, Herts. Specification, list of quantities, and form of tender may be obtained of Mr. A. A. Millward, Clerk to the Guardians, Pancras-road, N.W., to whom tenders are to be delivered before 10 a.m. on March 7. Plans and drawings may be inspected at the Town Hall, or at the Office of the Superintendent of the schools at Leavesden.

MARCH 7.—**Morley.**—ALTERATIONS TO MILLS.—The various works required in the alterations and extensions to Peel Mills, Morley, for Messrs. W. & E. Jackson. Plans and specifications may be seen, and quantities obtained, at Morley offices of Messrs. T. A. Buttery & S. B. Birds, architects, Queen-street, Morley; and at 1, Basinghall-square, Leeds. Sealed and endorsed tenders to be forwarded on March 7.

MARCH 7.—**Sheffield.**—EXCAVATIONS FOR POST-OFFICE.—The Commissioners of H.M. Works and Public Buildings invite tenders for excavations for a new Post-office at Sheffield. Drawings, specification, and a copy of the conditions and form of contract may be seen, and the site inspected, on application to the Postmaster, Head Post-office, Sheffield. Bills of quantities and forms of tender may be obtained at the undermentioned address on payment of 1*l.* 1s. Tenders must be delivered before 12 o'clock noon on March 7, addressed to the Secretary, H.M. Office of Works, etc., Storey's-gate, London, S.W., and endorsed "Tender for Sheffield New Post-office, Excavations."

MARCH 8.—**Carmarthen.**—ALTERATIONS TO POLICE-STATION.—The Carmarthen Corporation invite tenders for alterations to the Borough Police-station. Plans and specification may be seen, and forms of tender obtained, at the Borough Surveyor's Office, John-street, Carmarthen. Tenders, endorsed "Tender for Alterations to Police-station," to be delivered at the office of Mr. R. M. Thomas, Town Clerk, Town Clerk's Office, Carmarthen, by March 8.

MARCH 8.—**Drogheda.**—ALTAR.—A new white marble high altar for the Augustinian Church, Shop-street, Drogheda. Plans, etc., may be seen at the office of the architect, Mr. W. A. Scott, 45, Mountjoy-square, Dublin. Sealed estimates (marked "High Altar") should be forwarded on or before March 8, and be addressed to the Prior, the Very Rev. James Purcell, O.S.A., St. Augustine's, Drogheda.

MARCH 9.—**Ebbw Vale.**—WORKMEN'S HALL.—The Ebbw Vale Colliery Workmen's Trustees invite tenders for the erection of a workmen's hall at Ebbw Vale. The plans and specification may be seen, and bills of quantities obtained, at the office of Mr. Henry Waters, architect, Beaufort, on a deposit of 2*l.* 2s. Sealed tenders, endorsed, are to be in the hands of the miners' agent, Mr. Wm. Vyce, James-street, Ebbw Vale, on or before March 9.

MARCH 9.—**Rhydfelan.**—SHOP PREMISES.—The erection of shop premises and dwelling-house at Rhydfelan, Pontypridd, for Messrs. J. & A. L. Thomas. Plans and specification may be inspected at office of Mr. Arthur Lloyd Thomas, A.M.I.M.E., engineer and architect, Church-street, Chambers, Pontypridd. Sealed and endorsed tenders to be sent to Messrs. J. & A. L. Thomas, provision merchants, Rhydfelan, on or before March 9.

* MARCH 11.—**Blackfriars.**—JETTY.—Finsbury B.C. invite tenders for construction of a jetty at their riverside depôt, Bull Stairs Wharf, Upper Ground-street, Blackfriars. Copies of specification, drawings, and bills of quantities obtained from the Borough Surveyor's Office, Town Hall, between 10 and 4 o'clock (Saturdays 10 and 12 o'clock). Tenders, on official forms, endorsed "Jetty," to be delivered to the Town Clerk, Town Hall, Rosebery-avenue, E.C., not later than noon, March 11.

MARCH 11.—**Broadstairs.**—COTTAGE ALTERATIONS.—Broadstairs and St. Peter's U.D.C. invite tenders for the carrying-out of certain alterations and additions to cottage at Crampton Tower Waterworks, and for the erection of a workship adjoining the same. Plans and specifications can be seen, and forms of tender obtained, upon application to the Town Surveyor, Mr. H. Hurd. Sealed tenders, endorsed "Alterations to Cottage, etc.," must be delivered at office of Mr. L. A. Skinner, Clerk to the Council, Council Offices, Broadstairs, not later than noon on March 11.

MARCH 11.—**Liverpool.**—JOBBING REPAIRS.—Liverpool Select Vestry invite tenders for jobbing repairs in connexion with the Workhouse, Brownlow-hill, and other parochial buildings, from March 31, 1907, to March 28, 1908. Forms of tender and all necessary information may be obtained on application to Mr. H. J. Hagger, Vestry Clerk, Parish Offices, Brownlow-hill, to whom tenders should be sent on or before March 11.

MARCH 11.—**St. Hilary Trelease.**—SCHOOL WORK.—The Cornwall Education Committee invite tenders for work at the above school, including new cloakroom accommodation, etc., according to plans and specification, which may be seen by appointment at the school, or at the office of Mr. Sampson Hill, Architect to the Committee, Green-lane, Redruth, from whom all particulars relating to the work may be obtained. Forms upon which all tenders are to be made may be had from the Architect or at the school. Sealed endorsed tenders are to be sent to Mr. F. R. Pascoe, Secretary, Education Office, Truro, on or before March 11.

* MARCH 12.—**Great Yarmouth.**—GRAND STANDS.—The Race Committee of the Great Yarmouth T.C. invite tenders for the erection of grand stands on the Racecourse, South Denes. Plans and specifications can be seen, and bills of quantities obtained, of Mr. J. W. Cockrill, Borough Surveyor, Town Hall, Great Yarmouth. Tenders, with the quantities, are to be delivered at the office of the Town Clerk before noon, March 12.

* MARCH 13.—**Barnet.**—NURSES' HOME.—The Guardians of the Barnet Union invite tenders for erection of Nurses' Home at their Workhouse at Barnet. Plans, specifications, and conditions can be seen, and forms of tender obtained, on application to Messrs. White, Son, & Pill, 13 and 15, High-street, Barnet. Tenders, sealed, and endorsed "Tender for Nurses' Home at Barnet Workhouse," to be addressed to the Chairman of the Board of Guardians, and delivered to Mr. G. Dickinson Byfield, Clerk, 12, High-street, Barnet, Herts, on or before March 13.

MARCH 14.—**Edinburgh.**—SCHOOL WORKS.—Edinburgh School Board invite estimates for the following works to be executed, and minor alterations proposed to be made, at Willowbrae School:—(1) Mason work; (2) joiner work; (3) slater work; (4) plaster work; (5) plumber work; (6) painter work. Plans and specifications may be seen, and schedules of measurement obtained, at the office of Mr. Carfrae, architect, 3, Queen-street. Estimates, marked outside "Estimate for —— Work for Willowbrae School," to be sent to Mr. G. W. Alexander, Clerk to the Board. School Board Offices, Castle Terrace, Edinburgh, not later than March 14.

MARCH 15.—**Christchurch.**—SCHOOL.—Monmouthshire Education Committee invite tenders for the erection of a new mixed and infants' school at Christchurch, near Newport, in accordance with plans and specification prepared by Mr. Alfred Swash, F.R.I.B.A., architect, Newport. Plans and specification may be seen, and bills of quantities obtained, upon application to Mr. C. Dauncey, Secretary, County Council Offices, Newport, Mon., to whom sealed and endorsed tenders are to be sent on or before March 15. A deposit of 2*l.* 2s. for copy of bill of quantities is to be made.

MARCH 15.—**Sheffield.**—HOSPITAL BUILDINGS.—Sheffield City Hospitals Committee invite tenders for the whole or any portion of the work required in the erection of (1) a house, as a residence for the Medical Superintendent; (2) an isolation pavilion and an observation pavilion, all in the grounds of the Hospital for Infectious Diseases, situate at Lodge Moor, Sheffield. Drawings, etc., may be seen, and bills of quantities obtained, on application to the architects, Messrs. Gibbs & Flockton, 15, St. James's-row, Sheffield. Tenders, endorsed "Additions at Lodge Moor Hospital," to be delivered at office of Mr. Henry Sayer, Town Clerk, Town Clerk's Office, Town Hall, Sheffield, not later than 12 noon on March 15.

MARCH 19.—**Sherburn Hill.**—SCHOOL.—Durham County Education Authority invite tenders for new school at Sherburn Hill for about 250 scholars. Plans, specification, and general conditions of contract may be seen, and bills of quantities obtained, at the office of the County Education Committee's Architect, Shire Hall, Durham. Sealed tenders, endorsed "Sherburn Hill Council School Tender," are to be sent on or before March 19, addressed to the Clerk to the Education Committee, Shire Hall, Durham.

* MARCH 20.—**Birmingham.**—TOWER.—The Birmingham University invite tenders for a tower, 300 ft. high, at the New University Buildings at Burnbrook. Quantities and forms of tender can be obtained of the architects, Sir Aston Webb, R.A., & Mr. E. Ingress Bell, 19, Queen Anne's-gate, S.W., on payment of 2*l.* 2s. The drawings can be seen at the architects' offices between 10 and 5. Tenders to be

delivered at the architects' offices by first post, March 20.

✱ MARCH 20.—**Manchester.**—SCHOOL.—The Manchester Education Committee invite tenders for erection of the City-road Municipal school, Hulme, Manchester. Plans may be seen, and a copy of the bills of quantities (including specification) may be obtained, at the Education Offices, Deansgate, Manchester, on deposit of 2*l.* 2s. Tenders, on the official forms, must be delivered not later than March 20.

NO DATE.—**Darlington.**—HOUSES.—The bricklayers' work required for the erection of two dwelling-houses to be erected in Haughton-road, Darlington. Plans and specifications can be seen by applying to Mr. Henry Bedlington, 3, West Powlett-street, Darlington.

NO DATE.—**Exeter.**—SWIMMING BATH, ETC.—For gymnasium, swimming bath, additional dormitory, and other accommodation to the Royal West of England Institution for the Deaf and Dumb. Drawings and specification can be seen at the office of the architect, Mr. James Jerman, F.R.I.B.A., architect and surveyor, 1, Bedford-circus, Exeter.

NO DATE.—**Hemsworth.**—HOUSES.—For the erection and completion of the following:—Contract No. 1.—180 six-roomed dwelling-houses, general stores, club, and institute, bowling-green, forty piggeries, boundary walls, outbuildings, etc. Contract No. 2.—Street forming and main drainage for above, at Hemsworth Collieries, near Wakefield. Names to the Architects, Messrs. Garside & Pennington, Pontefract and Castleford, when bills of quantities will be forwarded in due course upon payment of 3*l.* 3s. Sealed tenders, endorsed "Hemsworth Property," to be forwarded to the South Kirkby, Featherstone, and Hemsworth Collieries, Ltd., Ropergate House, Pontefract.

NO DATE.—**Liskeard.**—LEVELLING CHURCH FLOOR.—The levelling of the floor of St. Martin's Church, and building a heating chamber.—For particulars apply Mr. Sedding, architect, Wadebridge.

ENGINEERING, IRON, AND STEEL.

MARCH 4-11.—**Leytonstone.**—ELECTRICAL WIRING, ETC.—Leyton U.D.C. invite tenders for the electrical wiring and fittings and for the hot-water heating apparatus required at the Leytonstone Branch Library (Park House), Leytonstone, N.E. Specification, conditions, and form of tender may be obtained on written application, on or before March 4, to Mr. William Jacques, A.R.I.B.A., 2, Fen-court, Fenchurch-st, E.C., which application must be accompanied by a deposit of 1*l.* (cheques will not be accepted). Sealed tenders, in special endorsed envelopes supplied with the forms, must be delivered at the meeting of the Library Committee to be held at the Town Hall, Leyton, on March 11, at 7 o'clock p.m.

MARCH 4.—**London.**—WHEELS AND AXLES.—The Bengal and North-Western Railway Company Directors invite tenders for the supply and delivery of:—(*a*) 600 pairs wheels and axles; (*b*) steel and wrought-iron material for constructing 200 covered goods wagons, as per specification to be seen at the Company's offices. Tenders, addressed to Mr. Alexander Izat, Managing Director, 237, Gresham House, Old Broad-street, London, E.C., and marked "Tenders for Wheels and Axles," or as the case may be, are to be lodged not later than noon on March 4. For each specification a fee of 10s. will be charged, which cannot, under any circumstances, be returned.

MARCH 4.—**Sheffield.**—IRON FENCING.—Sheffield Highway and Sewerage Committee invite tenders for wrought-iron fencing and gates at the Sewage Works, Blackburn Meadows. Specification and quantities may be obtained at the office of Mr. Charles F. Wike, C.E., City Surveyor, Town Hall, Sheffield, on payment of 10s. Tenders, endorsed "Sewage Works Fencing," are to be sent in not later than 9 a.m. on March 4, addressed to the "Chairman and Members of the Highway and Sewerage Committee, City Surveyor's office, Town Hall, Sheffield."

MARCH 5.—**Listowel, Ireland.**—BOILER.—The Listowel U.D.C. invite tenders for one 15 n.h.p., locomotive type, multitubular steam boiler, of the best and most approved class, to carry 140 lb. per square inch steam pressure, and mounted with necessary steam, water, and furnace fittings. Tenders, with detailed estimate and specification, will be received by Mr. E. J. Gleeson, Clerk to Council, at the U.C. Office, Listowel, up to 12 o'clock on March 5.

MARCH 5.—**London.**—MATERIALS.—Bombay, Baroda, and Central India Railway Directors invite up to noon on March 5 tenders for the supply of materials for steel foundry. Tenders must be made on forms, copies of which, with specification, can be obtained at offices of Mr. W. V. Constable, Secretary, Gloucester House, 2, 3, and 4, Bishopsgate-street Without, London, E.C., on payment of 21s. each (which will not be returned).

MARCH 8.—**Semer, Cosford.**—OIL ENGINE.—Cosford Guardians invite tenders for the supplying and fixing of a 2 b.h.p. oil engine, complete, with all necessary bolts, valves, connections, accessories, etc., to the pump at the Union Workhouse, Semer. Tenders are to exclude builder's work. Further particulars may be obtained on application to the Master of the Workhouse, Semer. Sealed tenders, endorsed "Tender for Oil Engine," must be forwarded to Mr. Alfred Newman, Clerk, Hadleigh, Suffolk, not later than March 8.

MARCH 9.—**Swinton.**—PLANT.—Swinton and Pendlebury D.C. invite tenders for the supply and delivery of plant for aerating and reheating water for public baths. Particulars may be obtained on application to Mr. Henry Entwisle, Surveyor of the Council, Council Offices, Swinton. Tenders and drawings to be returned to Mr. W. T. Postlethwaite, Clerk to the Council, not later than March 9.

MARCH 11.—**London.**—JETTY.—Finsbury B.C. invite tenders for the construction of a jetty at their river-side depôt, Bull Stairs Wharf, Upper Ground-street, Blackfriars. Copies of the specifications, drawings, and bills of quantities may be obtained on application at the Borough Surveyor's Office at the Town Hall on payment of 5*l.* 5s. Tenders must be on the official form, and endorsed "Jetty," and should reach Mr. George Whitehead Preston, Town Clerk, Town Clerk's Office, Finsbury Town Hall, Rosebery-avenue, E.C., not later than noon on March 11.

MARCH 13.—**Haslingden.**—BRIDGE WORKS.—Haslingden T.C. invite tenders for the demolition of four cottages, widening of the Ogden River Bridge, the erection of parapet walls, and other appurtenant works in connexion with the said bridge at Helmshore. Plans may be seen, and specifications and bills of quantities obtained, at the office of Mr. J. Singleton Green, Borough Surveyor, Haslingden, on payment of a deposit of 1*l.* 1s. Tenders, to be endorsed with the words "Ogden River Bridge," must be sent in to Mr. Walter Musgrove, Town Clerk, Municipal Offices, Haslingden, not later than March 13.

MARCH 13.—**London.**—METERS.—The Metropolitan Borough of St. Marylebone invite tenders for the supply, delivery, and maintenance, for a period of one year after date of delivery, of house meters. General conditions, specifications, schedule, and form of tender, may be obtained from Mr. F. A. Wilkinson, Resident Electrical Engineer and Manager, 19-20, York-place, Baker-street, W. Sealed tenders, endorsed "Tender for House Meters," must be addressed and delivered at the Town Hall, to Mr. James Wilson, Town Clerk, Town Hall, Marylebone-lane, Oxford-street, W., before 4 p.m., on March 13.

MARCH 14.—**Exeter.**—RAILINGS.—Exeter Corporation invite designs and tenders for the supply and delivery at the Tramway Depôt, Parish-street, Exeter, of wrought-iron fence railings. A sketch of the position, and an elevation of the car-shed in front of which the railing has to be fixed, can be obtained at office of Mr. Thomas Moulding, A.M.Inst.C.E., City Engineer and Surveyor, No. 7, Southernhay-west. Tenders and design must be sent so as to reach Engineer not later than 12 noon on March 14.

✱ MARCH 14.—**London.**—LIFT.—The Guardians of St. Mary, Islington, invite tenders for provision and fixing of a lift at St. John's-road Workhouse, Upper Holloway, N. Further information may be obtained from Mr. W. Smith, Architect, 65, Chancery-lane, W.C., up to March 11. Tenders to be delivered to Mr. E. Davey, Clerk, St. John's-road, Upper Holloway, N., before 11 a.m. on March 14.

✱ MARCH 14.—**Upper Holloway.**—BOILER, ETC.—The Guardians of the Parish of St. Mary, Islington, invite tenders for provision and fixing of a new boiler, heater, etc., at St. John's-road Workhouse, Upper Holloway, N. Further particulars are obtainable from the Master as above. Tenders, with specifications, sealed, and addressed to the Guardians, to be delivered at the above office not later than 11 o'clock, March 14.

MARCH 16.—**Newton-in-Makerfield.**—RETORT SETTINGS.—Newton-in-Makerfield U.D.C. invite tenders for the erection of two settings of through retorts (thirty-two mouthpieces), with alterations to retort house. Plan may be seen, and copies of specification obtained, at the office of the Gas Engineer, Mr. A. Bowes, A.M.I.C.E., Town Hall, Earlestown. Tenders, addressed to the Chairman of the Gas Committee, and endorsed "Tender for Retort Settings," must be delivered at office of Mr. C. Cole, Clerk to the Council, Town Hall, Earlestown, not later than March 16.

MARCH 18.—**Glasgow.**—RAILWAY WIDENING.—The Directors of the Caledonian Railway Company invite tenders for the works to be executed in a widening of the railway at and in the vicinity of Eglinton-street Station, Glasgow. Drawings may be seen at the offices of the Company's Engineer, Buchanan-street Station, Glasgow, where copies of the specification and schedule may be obtained on payment of 2*l.* 2s. An assistant engineer will be at the entrance to Eglinton-street Station on March 1, at 11 a.m., to accompany contractors over and point out the site of the works. Sealed tenders, endorsed "Tender for Eglinton-street Widening," to be lodged with Mr. J. Blackburn, Secretary, Caledonian Railway Company's Offices, 302, Buchanan-street, Glasgow, on or before March 18.

MARCH 18.—**Macclesfield.**—CAST-IRON PIPES.—Macclesfield R.D.C. invite tenders for the supply of about 98 tons of 4-in. and about 29 tons of 3-in. cast-iron pipes and special castings. Specifications may be obtained from Mr. J. Thorpe, surveyor, 19, King Edward-street, Macclesfield, on payment of 1*l.* by cheque. Tenders, sealed and endorsed "Cast-iron Pipes," must be delivered to Mr. J. Fred. May, Solicitor and Clerk to the Council, Macclesfield, not later than March 18.

MARCH 18.—**Macclesfield.**—WATER MAINS.—The Macclesfield R.D.C. invite tenders for the laying of about 5,450yds. of 4-in. and 3-in. cast-iron pipes, with meters, hydrants, and other fittings. Plans may be seen by appointment with Mr. J. Thorpe, surveyor, 19, King Edward-street, Macclesfield, from whom specification and quantities may be obtained on payment of 1*l.* by cheque. Tenders, sealed and endorsed "Laying Water Mains," must be delivered to Mr. J. Fred, May, Solicitor and Clerk to the Council, Macclesfield, not later than March 18.

MARCH 18.—**Maidstone.**—LIGHT RAILWAY.—Maidstone Corporation invite tenders for the construction and equipment of light railways, comprising permanent-way (tramway construction), overhead line, underground mains, switchboard, rolling stock, and buildings. Tenders to include the whole of the works. Offers for separate sections will not be considered. Copies of the specification, general conditions, and form of tender can be obtained from Mr. S. Lance Monckton, Town Clerk, on deposit of a 5*l.* Bank of England note. The plans may be inspected at the office of the Engineer, Mr. Stephen Sellon, 36, Victoria-street, Westminster. Tenders, addressed to "The Town Clerk, Maidstone," and endorsed "Tender for Light Railways," must be delivered on or before March 18.

MARCH 18.—**Pontypridd.**—BRIDGE WORKS.—Pontypridd U.D.C. invite tenders for the following works:—(1) Supply and erection of steelwork in connexion with the construction of a bridge over the River Taff at the Berw, Pontypridd; (2) masonry, abutments, fence walls, and other works in connexion with above bridge; (3) supply and erection of steelwork in connexion with the construction of a bridge at Factory-lane, Graig, Pontypridd; (4) masonry, abutments, fence walls, and other works in connexion with above bridge. Plans and specifications may be seen, and forms of tender obtained, at the office of Mr. P. R. A. Willoughby, A.M.Inst.C.E., Engineer and Surveyor, on payment of a deposit of 1*l.* 1s. in respect of each contract. Tenders, on the prescribed forms, scaled, and endorsed "Contract No. ——" (as the case may be), must be received by Mr. J. Colenso Jones, Clerk of the Council, Municipal Buildings, Pontypridd, on or before March 18.

MARCH 18.—**West Ham.**—MECHANICAL STOKERS.—West Ham Corporation invite tenders for:—(*a*) Mechanical stokers; (*b*) open type, low lift cooling tower. For particulars, apply to the Engineer and Manager, 84, Romford-road, Stratford, E. Tenders to be delivered at the office of the Town Clerk, Town Hall, West Ham, E., in the envelope supplied, by registered post, not later than 12 o'clock noon on March 18.

MARCH 19.—**Dublin.**—BOILER.—The Dublin Port and Docks Board invite tenders for a boiler for their steam tug *Majestic*. The specification and drawings, together with a special form of tender, can be obtained at the office of the Engineer of the Board, Mr. John P. Griffith, M.Inst.C.E., East Wall, Dublin, on payment of 1*l.* Tenders, marked on the outside of the envelope "Tender for Boiler," must be delivered by post, prepaid, and addressed the Secretary, Port and Docks Office, Westmoreland-street, Dublin, on or before March 19.

MARCH 25.—**Glasgow.**—PLANT.—Glasgow Corporation invite tenders for the supply and erection of steam turbo-alternators with condensing plant, Pinkston. Specification, with conditions and form of tender, can be obtained on application to Mr. James Dalrymple, General Manager, 46, Bath-street, Glasgow. Sealed tenders, marked "Tramways—Tender for Steam Turbo-Alternators," must be lodged with Mr. A. W. Myles, Town Clerk, City-chambers, not later than 10 a.m. on March 25.

APRIL 2.—**Bombay.**—RECLAMATION WORKS.—Bombay Port Trustees invite tenders for the construction of a reclamation between Mazagon and Sewri. The contract will include the building of a rubble masonry quay wall about 12,600ft. long on piled foundations, and the reclamation of about 518 acres of the foreshore; such reclamation to be effected by silt or mud pumped or dredged from the bed of the harbour, and covered with a layer of good earth. Copies of the specification and drawings of the work can be obtained from the Chief Engineer, Bombay Port Trust, Ballard-road, Bombay, or from the Trustees' Consulting Engineers, Messrs. Sir J. Wolfe Barry & A. J. Barry, 7, The Sanctuary, Westminster, S.W., on payment of 5*l.* sterling. Tenders, which must be endorsed "Tenders for Mazagon-Sewri-Reclamation," and accompanied by a deposit of Rs. 10,000 (666*l.*), will be received by the Secretary, Bombay Port Trust, Bombay, up to 5.30 p.m., or by the Trustees' Consulting Engineers, 7, The Sanctuary, Westminster, up to noon, on April 2.

MISCELLANEOUS.

MARCH 4.—**East Ham.**—FURNITURE.—East Ham T.C. invite tenders for the supply of furniture, etc., for their new isolation hospital, situated in Roman-road, East Ham. Particulars and form of tender may be obtained on application to the Medical Officer of Health (Mr. G. Sowden, M.D., D.P.H.), at the Town Hall, East-Ham, E. Tenders are to be sent in addressed to "The Chairman of the Public Health Committee, Town Hall, East Ham, E.," and endorsed "Tender for Hospital Furniture," not later than 10 o'clock a.m. on March 4.

MARCH 4.—**King's Norton.**—SCAVENGING.—King's Norton and Northfield U.D.C. invite tenders for the removal of house refuse and the cleansing of earth closets, privies, ashpits, and cesspools within the district comprising Millpool Hill, Hollywood, Drakes Cross Wythal, etc., for the year ending March 31, 1908. Further particulars may be obtained on application to Mr. Edwin Docker, Clerk to the Council, 10, Newhall-street, Birmingham. Tenders must be received not later than noon on March 4.

MARCH 6.—**Southampton.**—FIREWOOD.—Southampton Guardians invite tenders for the supply of 100 fathoms of deal and batten ends, at least two-thirds of red wood, not less than 1 foot in length, all to be squared edge. It must be stated in the tender whether the timber is Swedish or Finnish, and prices to be quoted for first and second quality. Forms of tender can be obtained from Mr. A. J. Walden, Clerk to the Guardians, Clerk's Offices, the Workhouse, Southampton. Tenders, endorsed "Tender for Firewood," must be sent by post to the Clerk not later than March 6.

MARCH 6.—**Tottenham.**—FURNISHING LIBRARY.—Tottenham U.D.C. invite tenders for furnishing the extensions to the Central Library, High Cross, Tottenham. The plans can be seen, and general conditions, specifications, and forms of tender can be obtained, on application to Mr. W. H. Prescott, A.M.Inst.C.E., Engineer to the Council, at their Offices, The Green, High-road, Tottenham. The sum of 10s. 6d. will be charged for the specifications. Persons tendering will be required to deposit with the Treasurer, when handing in their tenders, in a Bank of England note, or cash, the sum of 5*l.* Sealed tenders, on the form supplied, endorsed "Tender for Furniture—Central Library," to be delivered to Mr. Edward Crowne, Clerk of the Council, Tottenham, by 12 o'clock noon on March 6.

MARCH 7.—**Smallthorne.**—SCAVENGING.—The Smallthorne U.D.C. invite tenders for the removal of ashes and nightsoil from the undermentioned districts, from April 1, 1907, to March 31, 1908:—(1) Brindley Ford; (2) Fegg Hayes and Chell; (3) Packmoor; (4) Milton. Information as to the limits of the several districts may be obtained from Mr. E. Dutton, the Sanitary Inspector. Tenders, sealed and endorsed "Scavenging Tender," must be addressed to Mr. Geo. Phillips, Clerk to the Council, The Council Offices, Smallthorne, and be delivered there not later than March 7, at 3 o'clock p.m. A form of contract may be seen on application to the Clerk.

MARCH 8.—**Atcham.**—CARTAGE.—Atcham R.D.C. invite tenders for cartage of stone and materials upon the roads within the district for the year ending March 31, 1908. Form of tender, containing full particulars, can be obtained from the Surveyor, Mr. T. Fortune, Pontesbury; or from Mr. Joseph Everest, Clerk, District Council Offices, St. John's Hill, Shrewsbury, at the Council Offices. Tenders to be delivered to Clerk not later than 4 o'clock p.m. on March 8.

MARCH 9.—**Bandon.**—FENCE.—Bandon R.D.C. will, at their meeting on March 9, consider tenders for

the erection of a plot fence at Tullymurriby, in accordance with specification, which can be seen at the Council Room. Tenders to be lodged with Mr. A. Haynes, Clerk of D.C., Council Room, Workhouse, before 12 o'clock noon.

MARCH 9.—**Cambridge.**—CARTING.—Cambs. C.C. invite tenders for carting materials on to the several sections of the Cambridgeshire main roads from April 1, 1907, to March 31, 1908. For forms and particulars for the western side apply to Mr. John Papworth, Landbeach, Cambs. For forms and particulars for the eastern side apply to Mr. Smith H. Rowley, Histon, Cambs. Tenders must be sent in on or before March 9. (Mr. Smith H. Rowley, County Road Surveyor, Council Offices, Cambridge.)

✱ MARCH 9.—**Stockport.**—ELECTRIC CLOCKS.—The County Borough of Stockport invite tenders for the installation of electric clocks in the new Town Hall. Particulars of systems to Town Clerk, Stockport, on or before March 9.

MARCH 11.—**Kington.**—HAULING.—Kington R.D.C. invite tenders for hauling stone and other materials for the repair of the roads in their district. Estimates of quantities and particulars of the several roads may be obtained from the Surveyor, Mr. Francis Exton, Broxwood, Pembridge, who will supply forms of tender. Sealed tenders to be delivered at office of Mr. Bernard Philpin, Clerk to the Council, Kington, on or before March 11.

MARCH 11.—**Loughton.**—CARTAGE, ETC.—Loughton U.D.C. invite tenders for general cartage and team work, including road watering, for one year, commencing April 1, 1907. Full particulars can be obtained from Mr. H. White, District Surveyor. Also for a horse (with harness) for the same period, for use with the Council's dust van. Particulars can be had of the Clerk, Council Offices, Loughton. Tenders, marked on the outside "Team Work" or "Horse," as the case may be, to reach Mr. J. H. Hayward, Clerk to the Council, Council Offices, Loughton, at the latest on or before 3 p.m., March 11.

MARCH 11.—**Sedgefield.**—HAULAGE.—The R.D.C. of Sedgefield invite tenders for the haulage of road materials in their district for the year ending March 31, 1908. Forms of tender and full particulars may be obtained on application to Mr. T. W Griffiths-Roberts, Surveyor, Sedgefield, Ferryhill, to whom all tenders must be sent on or before March 11, duly sealed, and endorsed "Tender for Haulage."

MARCH 11.—**Wimborne.**—QUARRYING, ETC.—Wimborne and Cranborne R.D.C. invite tenders for quarrying, sifting, breaking, and yarding gravel, to pass a 2-in. ring gauge, and for team work connected therewith, in the parishes comprised in the district of the Council. Forms of tenders and other particulars can be had on application at the office of the Clerk to the Council, or at the office of Mr. R. T. S. Seymour, District Surveyor, Wimborne Minster. Sealed tenders to be sent to Mr. Montagu Luff, Clerk to the Council, Church-street, Wimborne, not later than March 11.

MARCH 12.—**Faversham.**—TEAM LABOUR.—Faversham R.D.C. invite tenders at per day of nine working hours for all team labour required for one year, commencing April 1, 1907, on the district roads. Form of tender and further particulars to be obtained of the District Surveyor, Mr. J. G. Chittenden, Ashford-road, Faversham. Sealed tenders to be sent in by March 12.

✱ MARCH 14.—**London.**—GASFITTER WORK.—The Commissioners of H.M. Works and Public Buildings invite tenders for the execution of gasfitter's work to buildings, etc., in their charge in the London district, for three years from April 1. Printed schelule, with form of tender, obtainable at H.M. Office of Works, Storey's-gate, Westminster, S.W., between 11 a.m. and 5 p.m. Tenders, endorsed "Tender for Gasfitter Work, London District," addressed to the Secretary, as above, to be delivered before 12 o'clock noon on March 14.

MARCH 16.—**Middleton.**—DISINFECTANTS.—The Corporation of Middleton (Sanitary Department) invite tenders for disinfecting powder for the year ending March 25. Further particulars and form of tender may be obtained from Mr. C. H. Norton, Sanitary Inspector, Corporation-street, Middleton. Tenders, addressed to the Chairman of the Health Committee, endorsed "Disinfecting Powder," accompanied by samples, must be delivered at office of Mr. Frederick Entwistle, Town Clerk, Town Hall, Middleton, not later than March 16.

MARCH 18.—**Merton.**—SCAVENGING, ETC.—The Merton Parochial Committee invite tenders as follows for the year ending March 31, 1908:—(1) For the weekly collection and removal of house and garden refuse; (2) for the supply of horses and carmen for street watering. Forms of tender, and conditions of contract, may be obtained at the offices of the R.D.C., Town Hall, Croydon. Sealed tenders, endorsed "Tender for ——," must be sent to Mr. Ernest John Gowen, Clerk, District Council Offices, Town Hall, Croydon, before 12 o'clock noon on March 13.

PAINTING, etc.

MARCH 5.—**Ashton-under-Lyne.**—MATERIALS.—The Guardians invite tenders for painting and decorating of interior and exterior of recently-erected hospitals, nurses' home, boiler-house, etc. Particulars and forms of tender from Messrs. Eaton, Sons, & Cantrell, architects, Stamford-street, Ashton-under-Lyne, after payment to the Clerk of the sum of 2*l*. Tenders, duly endorsed and sealed with wax, must be sent to Mr. G. H. Partington, Clerk to the Guardians, Poor Law Offices, Ashton-under-Lyne, not later than March 5.

MARCH 6.—**Portsmouth.**—PAINTING, ETC.—Portsmouth Guardians invite tenders for painting and renovating the interior and exterior of the Guardians' Offices and Central Registration Offices, St. Michael's-road. Specifications may be seen, and all particulars ascertained, on application to the Clerk of Works, who will be in attendance at the Guardians' Offices. Tenders must be delivered at the offices of Mr. E. H. Mitchell, Clerk, Guardians' Offices, 1, St. Michael's-road, Portsmouth, not later than noon on March 6.

✱ MARCH 6.—**Woolwich, etc.**—CLEANING AND PAINTING.—The Metropolitan Asylums Board invite tenders for:—(1) Cleaning and painting at Brook Fever Hospital, Shooter's Hill, Woolwich; (2) cleaning and painting at Gore Farm (Convalescent) Fever Hospital, Dartford, Kent. Each in accordance with specification prepared by Mr. W. T. Hatch, Engineer-in-Chief. Specifications, conditions of contract, and form of tender for each work may be inspected at the Office of the Board, Embankment, E.C., and can there be obtained on payment of 1*l*. each. Tenders must be delivered at the Office of the Board before 10 a.m., March 6.

MARCH 7.—**Huddersfield.**—WHITEWASHING, ETC.—Huddersfield Corporation invite tenders for the whitewashing and lime-washing of the interior of the Model Lodging-house, Chapel Hill. Specifications and general conditions may be seen, and bills of quantities and forms of tender obtained, on application at the offices of the Borough Engineer and Surveyor, 1, Peel-street, Huddersfield. Sealed tenders, endorsed "Tender for Whitewashing Model Lodging-house," signed in the handwriting of the tenderer or his agent, and addressed "Town Clerk, Town Hall, Huddersfield," must reach him not later than 10 a.m. on March 7.

MARCH 7.—**Llanbethery.**—DECORATING.—For decorating "Redholme," Llanbethery. Particulars, Mr. Jones, Blue Anchor Inn, East Aberthaw. All tenders to be in by March 7.

✱ MARCH 8.—**Hammersmith.**—PAINTING, ETC.—The Managers of the Kensington and Chelsea School District invite tenders for painting, colouring, and cleaning work proposed to be done at their Branch School, 253, King-street, Hammersmith, W. A copy of the specification may be obtained by sending a stamped directed foolscap envelope to Mr. Henry D. Astett, Clerk to the Board. Tenders must be sent in by or before 10 a.m., March 8.

MARCH 9.—**Thirsk.**—PAINTING.—The Guardians will, at their meeting on March 11, receive tenders for painting all the doors, windows, and outside wood, iron, and stone work of the Union Workhouse and Union Offices, Thirsk. Also for painting the inside doors, windows, wood, stone, and iron work of the children's department of the Workhouse. The Workhouse Master will point out the work to be done at the Workhouse. Form upon application to Mr. William Swarbreck, Clerk to the Guardians, Union Offices, Finkle-street, Thirsk, on any day up to March 9, by depositing 1*l*. 1s. Tenders to be sealed and endorsed "Tender for Painting," and delivered on or before 12 o'clock at noon.

MARCH 11.—**Wakefield.**—COLOURING, ETC.—The Storthes Hall Asylum Committee invite tenders for the colouring of walls and whitewashing of ceilings in connexion with the first portion of the main Institution. Specifications may be obtained on application to Office of Mr. J. Vickers-Edwards, County Architect, County Hall, Wakefield. A deposit of 1*l*. is required. Cheques, etc., must be made payable to the West Riding Treasurer, and sent to him at the County Hall, Wakefield. Sealed tenders, properly endorsed, to be forwarded to the Architect not later than 10.30 on the morning of March 11.

MARCH 16.—**Beverley.**—PAINTING.—East Riding Lunatic Asylum Visiting Committee invite tenders for painting the interior of the new pavilion, dining-hall, mess-room, etc., at the Asylum, according to a specification and conditions, which may be inspected at the Asylum, where all other necessary information may also be obtained, between the hours of 9.0 a.m. and 12.30 p.m. Tenders, endorsed "Asylum Painting," to be sent to Mr. C. W. Hobson, Clerk, Newbegin, Beverley, not later than March 16, at 4.0 p.m.

NO DATE.—**Outwood.**—PAINTING.—The painting and decorating of the Outwood Wesleyan Church, near Wakefield. Specifications and all particulars may be obtained from Messrs. Garside & Pennington, architects and surveyors, Pontefract and Castleford.

ROADS, SANITARY, AND WATER WORKS.

MARCH 5.—**Elstree, Aldenham.**—SEWERAGE.—Watford R.D.C. invite tenders for the laying of about 370 lin. yds. of 9-in. and 6-in. pipes, together with manholes and other necessary work in connexion with the sewerage of Elstree in Aldenham. Plans and specifications may be seen, and bills of quantities obtained, at the office of the Engineer to the Council, Mr. Ernest Lailey, 9, Market-street, Watford, between the hours of 9 and 1, on payment of 1*l*. 1s. Sealed tenders, endorsed "Tender for Elstree Sewerage," must be delivered at offices of Mr. H. Morten Turner, Clerk to the Council, Watford-place, Watford, not later than 4 p.m. on March 5.

MARCH 5.—**Willington Quay.**—STREET WORKS.—Willington Quay U.D.C. invite tenders for tar macadam, chip paving, kerbing, channelling, etc. Particulars on application, in writing, to the Surveyor, Mr. J. Fleming Davidson, Council Chambers, Willington Quay. Tenders, endorsed "Tender for Street Works," are to be delivered to Mr. W. S. Daglish, Clerk, 28, Sandhill, Newcastle-on-Tyne, on or before March 5.

MARCH 6.—**Bagworth.**—SEWER.—Market Bosworth R.D.C. invite tenders for providing and laying about 152 yds. of 9-in. glazed earthenware socket-pipe sewer, and a settling tank and filter, at Bagworth. Plans and specifications may be seen at the residence of Mr. W. M. Sykes, Surveyor to the Council, Chapel-street, Ibstock. Sealed and endorsed tenders must be sent in to Mr. Frank Bouskell, Clerk to the Council, Market Bosworth, Nuneaton, not later than 10 a.m. on March 6.

MARCH 6.—**Failsworth.**—STREET WORKS.—The U.D.C. of Failsworth invite tenders for the private street improvement works required to be executed in Hardman-lane, Failsworth. Plans and specification may be seen, and forms of tender, with quantities, obtained, at the Surveyor's Office, Town Hall, Failsworth. Sealed tenders, endorsed "Tender for Private Street Works," must be delivered to Mr. H. C. Broome, Clerk to the Council, Failsworth, not later than 12 o'clock noon on March 6.

✱ MARCH 6.—**London.**—ROAD MATERIALS.—The Commissioners of H.M. Works and Public Buildings invite tenders for the supply of road materials to the Royal Parks, viz.:—Guernsey or Alderney granite, brown Kentish flints, red pit sand, gravel, cockle shells, screened river sand, and brushed Thames ballast. Forms of tender, containing full particulars, may be obtained at H.M. Office of Works, Storey's-gate, S.W., between 11 and 4. Tenders are to be delivered at the office before 12 noon, March 6, addressed to the Secretary, and marked on the outside "Tender for Road Materials, Royal Parks."

MARCH 6.—**Newmarket, Ireland.**—SEWERS.—Kanturk R.D.C. will, at their meeting to be held on March 6, receive and consider tenders for the repair of the sewer at New-street, Newmarket, according to specification, to be seen at office of Mr. T. Guiney, Clerk to Council, Board-room, Workhouse, Kanturk. Sealed tenders, containing the names of two solvent sureties, to be lodged in the tender-box attached to the Board-room door not later than 11 o'clock a.m.

MARCH 6.—**Oldham.**—SEWERING, ETC.—Oldham Surveyor's Committee invite tenders for the sewering, paving, and completing of:—Dame-street, Grosvenor-street (part of), Somerset-street, Short-street, Frank-street, from Miles-street to Lowerhouse-street. Also for the sewering and draining of back Gibraltar-street. Plans and specifications can be seen, and quantities and forms of tender obtained, at the office of the Borough Surveyor. Sealed tenders, endorsed "Tender for Private Street Works," and addressed to the "Chairman of the Surveyor's Committee," to be returned not later than March 6.

✱ MARCH 7.—**Aldershot.**—WATER-CLOSETS, ETC.—Tenders are invited for remodelling existing water-closets and urinal blocks for men and building new ones at Badajos, Salamanca, and Talavera Infantry Barracks at Wellington Lines, Aldershot. Plans, specifications, and conditions of contract may be seen, and bills of quantities and form of tender obtained, at the office of the Director of Barrack Construction, War Office, Atterbury-street, Grosvenor-road, S.W., on March 5, 6, and 7.

MARCH 7.—**Blyth.**—PIPE-LAYING.—Blyth U.D.C. invites tenders for excavating ground, laying and jointing water pipes, fixing sluice valves, hydrants, etc. Full particulars as to quantities, depths, etc., to be obtained from Mr. John Fawcett, Surveyor to the Council, at the Council Offices Bridge-street, Blyth. Sealed tenders (endorsed "Pipe-laying") to be sent to Mr. Thomas R. Guthrie, Clerk to the Council, Bridge-street, Blyth, not later than noon of March 7.

MARCH 7.—**Guisborough.**—TAR-MACADAM.—Guisborough U.D.C. invite tenders for tar-macadamising about 2,600 sup. yds. in Westgate, Guisborough. Plans and specifications can be seen on application to Mr. R. H. Kilburn, Surveyor, between the hours of 9 and 10 a.m. and 1 and 2 p.m. Tenders, properly endorsed, to be delivered to Mr. W. Richardson, Clerk to the Council, Town Hall, Guisborough, not later than noon on March 7.

MARCH 7.—**Leeds.**—PAVING.—Leeds Highways Committee invite tenders for the paving and flagging of the following streets:—Blayds-street, Kippax-street, back Lambton-grove, Alcester-street, Lumley-avenue, Lumley-road, Beechwood-terrace, Beechwood-mount, back Beechwood-road, Roumelia-road, Roumelia-terrace, and Purchon-street. Drawings may be seen at the City Engineer's Office, Municipal Buildings. Forms of tender and bills of quantities may be obtained, and copies of the documents forming the contract inspected, on application at the Highways Office, 155, Kirkstall-road. Sealed tenders, endorsed "Tender for Private Street Works," and addressed to the Highways Committee, must be delivered at the Town Clerk's Office, Town Hall, Leeds, not later than 10 a.m. on March 7.

MARCH 8.—**Garshake.**—FILTERS.—The Dumbarton T.C. invite tenders for the construction of three sand filters at Garshake, together with all the contingent works connected therewith. Drawings may be seen in the office of the engineers, Mr. John T. Babtie, 188, West Regent-street, Glasgow, from whom printed copies of the specification and duplicate copies of the tender and schedule of quantities may be obtained. Sealed offers, endorsed "Tender for Filter," must be lodged with Mr. Alexander Roberts, Town Clerk, Municipal Buildings, Dumbarton, not later than noon on March 8.

MARCH 8.—**Liskeard.**—SEWER.—Liskeard R.D.C. invite tenders for laying about 220 ft. of new 6-in. stoneware sewer at Trevelmond, in the parish of Liskeard. Tenders to be sent to Mr. Edwin Mallett, Sanitary Inspector (marked "Tender"), on or before March 8.

MARCH 9.—**Belford.**—ROAD WORKS.—Tenders are invited by the R.D.C. of Belford for quarrying, breaking, carting, and laying on materials, and for carting soil and road scrapings on the several groups of highways within the Rural District of Belford, from March 25, 1907, to March 25, 1908. Forms of tender and other information may be obtained on application to the District Surveyor, Mr. C. A. Lake, Warenford, Chathill. Tenders, sealed, and marked "Tenders for Roads," must be addressed to and reach Mr. Adam Douglas, Clerk to the R.D.C. of Belford, Alnwick, on or before March 9.

MARCH 9.—**Harrow.**—MAKING-UP.—Harrow-on-the-Hill U.D.C. invite tenders for the making-up of the private streets known as Greenhill-crescent and Wellesley-road. Drawings may be seen, and specifications, quantities, and forms of tender obtained, from Mr. J. Percy Bennetts, Engineer and Surveyor to the Council, on deposit of a 5*l*. Bank of England note. Sealed tenders on the forms supplied, endorsed "Private Street Works," to reach Mr. John Strachan, Clerk to the Council, on or before March 9.

MARCH 9.—**Patricroft, Eccles.**—PLAYGROUND.—Eccles Corporation invite tenders for the formation of the playgrounds to the Lewis-street Council Schools, Patricroft. Form of tender and specification can be obtained from Mr. Edwin Parkes, Town Clerk, Town Hall, Eccles. Sealed tenders to be delivered, in the official envelope, not later than noon on March 9.

MARCH 11.—**Sparkhill, Yardley.**—SEWERS.—Yardley R.D.C. invite tenders for the provision and construction of the following foul-water sewers and drains (mostly in bad ground), viz.:—630 yds. of 15-in. sewer, 288 yds. of 12-in. sewer, 261 yds. of 9-in. sewer, 330 yds. of 6-in. house drains, together with manholes, lampholes, flushing chambers, and other works appertaining thereto, in accordance with plans, etc., which may be seen on application to the Engineer and Surveyor, Mr. Arthur W. Smith, at the Council House, Sparkhill, near Birmingham. Specification, bill of quantities, and form of tender can be obtained on payment of 3*l*. 3s. to Mr. Francis Ladbury Thompson, Clerk of the Council, the Council House, Sparkhill, near Birmingham. Tenders, en-

dorsed "Re-sewerage of Stratford-road, Sparkhill," to be addressed and delivered to Clerk not later than noon on March 11.

MARCH 13.—**Ashton-in-Makerfield.**—STREET IMPROVEMENTS.—The U.D.C. of Ashton-in-Makerfield invite tenders for making-up several private streets. Plans and sections may be inspected, and copy of specification and schedule of quantities may be obtained (on deposit of 10s. 6d. with Mr. Albert Sykes, Clerk to the Council, Council Offices, Ashton-in-Makerfield), on application to Mr. Thomas Burgess, F.I.S.E., the Council's Surveyor, Council Offices, Ashton-in-Makerfield. Sealed tenders, endorsed "Private Street Improvement," to be delivered at the Clerk's Office not later than 10 a.m. on March 13.

MARCH 13.—**Dinnington Colliery.**—STREET WORKS.—Castle Ward R.D.C. invite tenders for the making-up of five private streets at Dinnington Colliery. Plans, etc., may be seen, and copies of the quantities and forms of tender, etc., obtained, on application to Mr. James Jameson, Sanitary Surveyor, Fernlea, Ponteland. A deposit of 1*l.* 1s. will be required for each set of quantities taken out. Sealed and endorsed tenders are to be delivered or sent by post so as to be deposited with Mr. George Wilkinson, Clerk to the Council, 1, Mosley-street, Newcastle-upon-Tyne, not later than 12 o'clock noon on March 13.

MARCH 15.—**Cottam.**—SEWAGE WORKS.—Fulwood U.D.C. invite tenders for the carrying out of certain additions to their Sewage Purification Works, situate at Cottam, near Preston, consisting of storm-water filter beds, effluent clarifying beds, laying out land irrigation areas and other contingent works, according to plans prepared by their Engineer, Mr. Charles J. Lomax, A.M.I.C.E., 37, Cross-street, Manchester. Specifications and bills of quantities may be obtained on the payment of a deposit of 2*l.* 2s., and the drawings inspected at the Engineer's Office on and after March 4 until March 7. The drawings may also be inspected at the Council Offices in Fulwood on March 8, between the hours of 10 a.m. and 4 p.m. Tenders, endorsed "Additional Sewage Purification Works," to be sent to Mr. Arnold Brierley, Solicitor, Clerk to the Council, U.D.C. Offices, Fulwood, near Preston, not later than 10 o'clock on March 15.

MARCH 18.—**Kettering.**—SEWAGE DISPOSAL.—Kettering U.D.C. invite tenders for the following:—(1) The construction of works of sewage disposal, comprising septic tanks, filters, and other works, and the rebuilding of two cottages at their Sewage Disposal Works; (2) the supply of valves and penstocks required on the above works; (3) the construction of about 340 yds. of 18-in. pipe sewer in Gas-street, together with all manholes, junctions, and connexions. Specifications and quantities may be obtained on application to the Council's Surveyor, Mr. T. R. Smith, Market-place, Kettering. In the case of item No. 1 a deposit of 2*l.* 2s. will be required. Tenders to be forwarded to Mr. John Bond, Clerk to the Council, Council Offices, Kettering, not later than March 18.

MARCH 18.—**Poynton, Macclesfield.**—SEWERS.—Macclesfield R.D.C. invite tenders for the laying of about 1,720 yds. of 6-in. stoneware pipe sewers, with manholes and flushing arrangements, at Poynton. Plans may be seen by appointment with Mr. J. Thorpe, Surveyor, 19, King Edward-street, Macclesfield, from whom specification and quantities may be obtained on payment of 1*l.* by cheque. Tenders, sealed, and endorsed "Laying Sewers," must be delivered to Mr. J. Fred. May, Solicitor and Clerk to the Council, Macclesfield, not later than March 18.

* MARCH 18.—**Putney.**—MAKING-UP AND PAVING.—The Wandsworth B.C. invite tenders for making-up and paving of part of Luttrell-street (renamed Luttrell-avenue), Putney. Specification and drawings may be seen and form of tender obtained at the Surveyor's Office, 41, High-street, Wandsworth, S.W. Tenders are to be delivered at Council House, East Hill, Wandsworth, endorsed "Tender for Paving Luttrell-street," before 12 noon on March 18.

MARCH 19.—**Sydenham.**—SEWER.—Lewisham B.C. invite tenders for the construction of a 4-ft. by 2-ft. 8-in. brick and concrete sewer in Sydenham-road, Sydenham (from Mayow-road to Bell Green), and other works in connexion therewith. The plans and specifications may be seen, and forms of tender obtained, at the Town Hall, Catford (Surveyor's Department), on and after March 5. Copies of the specification may also be had on payment of the sum of 5s., which will not be returned. The tenders must be on forms issued by the Council, enclosed in an envelope, sealed and endorsed "Tender for Sewer, Sydenham-road," and must be delivered by 4 o'clock on March 19, at the Town Hall, and placed in the box there provided for the purpose.

MARCH 20.—**Cardiff.**—RESERVOIR.—Cardiff Corporation invite tenders for the sinking of trial holes on the site of the proposed Reservoir No. 3 (Llwynon) in the Taff Fawr Valley, county of Brecon, 4½ miles from Merthyr Tydfil. Drawings may be seen, and printed specification, form of tender, and other information may be obtained from the Waterworks Engineer, Mr. C. H. Priestley, M.Inst.C.E., City Hall, Cardiff, after March 4, on payment of a deposit of 3*l.* 3s. Sealed tenders, endorsed "Tender for Trial Shafts, No. 3 Reservoir, Cwm Taff," to be delivered at office of Mr. J. L. Wheatley, Town Clerk, City Hall, Cardiff, on or before March 20.

MARCH 25.—**St. Cleer, etc.**—REPAIR OF ROADS.—Liskeard R.D.C. invite tenders for the repair of the highways in the parishes of St. Cleer, Linkinhorne, and Menheniot, for the year ending March 25, 1908. For further information see posters. Mr. G. Hawkins, Surveyor.

STONE, MATERIALS, AND STORES

MARCH 4.—**Carlisle.**—SUPPLIES.—Carlisle Gas Committee invite tenders for the supply of the following materials, etc., required at their works during the twelve months ending March 31, 1908, viz.:—Oil for C. W. gas manufacture, oxide of iron, lime, cast-iron pipes, lead and composition pipes, sheet lead, white lead, castings, bar and sheet iron, lubricating oils, cotton waste, engine wipers (white), glass, Portland cement, spun and tarred yarn. Tenders, on forms giving quantities, etc., which will be supplied on application to Mr. W. J. Smith, B.Sc., Engineer and Manager, Gasworks, Carlisle, to be addressed to the Chairman of the Gas Committee, and delivered at the office of the Town Clerk, not later than March 4.

MARCH 4.—**Foots Cray.**—ANNUAL CONTRACTS.—Foots Cray U.D.C. invite tenders for the supply of the following for the twelve months ending March 31, 1908, viz.:—Granite setts; pit flints; screened gravel; fine gravel; chalk; hardcore; tar-paving (material only); horse hire. Particulars, specifications, and forms of tender may be obtained of Mr. Wm. Augustus Farnham, F.S.I., Surveyor to the Council, Council Offices, Sidcup, Kent, to whom tenders, duly sealed and endorsed, must be sent on or before 12 o'clock noon on March 4.

MARCH 4.—**Luddenden Foot.**—MATERIALS.—Luddenden Foot U.D.C. Highway Committee invite tenders for the supply and delivery of the following materials for the twelve months ending March 31, 1908, viz.:—Machine-broken granite; limestone macadam and chippings, setts, flags, kerbs, channelling, etc.; granite setts, 5 in. by 5 in., 4 in. by 5 in., and 3 in. by 6 in. Specifications and form of tender may be obtained upon application to Mr. J. Stockwell Bottomley, Surveyor, Council Offices, Luddenden Foot. Sealed tenders to be delivered on or before March 4.

MARCH 4.—**Marylebone.**—MATERIALS.—The B.C. invite tenders for the following works and materials for one year, commencing April 1, 1907:—Removal of street slop (North and Middle Districts); horses, harness, and drivers for street-watering (South District); horses, harness, and drivers for night washing and sweeping machines; carting rubbish and one-horse carts; timber, cement, broken granite; lime and bricks; footway kerb and granite pitching; Yorkshire and artificial paving; Thames ballast and sand; glazed stoneware and sewer pipes; pit flints, gravel, and hoggin; tools and ironmongery; ironwork for sewers and iron castings; plumber's work and materials; wood blocks for repairs; repairs to carts, trucks, and barrows; supply and repair of harness; oils; bass brooms; tar-paving; pitch, creosote oil, and tar; brushes, brooms, etc. (baths); chandlery (baths); engineer's requirements, oils, etc. (baths). All tenders to be sealed and delivered to Mr. James Wilson, Town Clerk, The Town Hall, St. Marylebone, W., at the Town Hall, Marylebone-lane, Oxford-street, W., endorsed "Tender for ——." by or before 11 o'clock a.m. on March 4. Further particulars and forms of tender may be obtained on application at the Town Hall.

MARCH 4.—**Oxendon.**—GRANITE.—Oxendon R.D.C. invite tenders for the supply of granite, slag, and gravel for the year ending March 31, 1908:—Estimated quantity about (more or less)—3,000 tons best and seconds X, XX, XXX, granite; 500 tons granite dust or gravel; 500 tons local gravel for blinding; 400 tons slag, X, XX, and Dust. Delivered, carriage paid, and in such quantities as ordered by the Surveyor, Mr. W. J. Smith, Coventry-road, Market Harborough. Sealed tenders, marked "Tender," must be sent to Mr. Charles Burgoine, Clerk, not later than March 4.

MARCH 4.—**Steyning.**—FLINTS.—Steyning West R.D.C. invite tenders for the supply of flints, to be delivered on the roads of the several parishes in the district before October 1 next. Forms of tender can be obtained on application to Mr. Edward Cripps, solicitor and Clerk to the said Council, Council Offices, New Shoreham, Sussex; or of the Surveyor of the Council, Mr. F. Slaughter, High-street, Steyning, and such forms only will be received. Latest day for tenders to be sent in March 4.

MARCH 4.—**Wangford.**—ROAD MATERIALS.—Wangford R.D.C. will, at their meeting on March 4, receive tenders for the following materials, to be delivered at the railway station at Bungay, in such quantities and at such times as the Surveyor of the Council may from time to time direct, viz.:—Granite, 1¾ in., 350 tons; fine gravel, 60 loads; marl, 10 tons. Tenders must be on the forms, to be obtained from the Clerk, Mr. F. S. Rix, Beccles, and must be sent to his office, marked outside "Tender for ——," not later than 8 a.m. on March 4.

MARCH 5.—**Belfast.**—MATERIALS.—Belfast District Asylum Committee of Management will, on March 5, receive tenders for supplying the institution, from April 1, 1907, to March 31, 1908, with the following:—(17) Paints and oils; (18) plumbing materials; (19) timber. All tenders must be on official forms, to be had on application to the clerk, at the Office of the Institution, Grosvenor-street, Belfast, and be sent in not later than 11 o'clock a.m.

MARCH 5.—**Chepstow.**—FURNITURE, ETC.—Chepstow Guardians invite tenders for furniture and ironmongery for their new workhouse infirmary. The master of the workhouse will, on personal application, supply particulars of the number and quality of the articles required. Tenders must be sent to Mr. Fothergill Evans, Clerk, Union Offices, Chepstow, not later than March 5, endorsed "Furniture."

MARCH 5.—**East Ham.**—SUPPLIES.—East Ham B.C. invite tenders for the following supplies, required in the erection of the Central Library:—(*a*) Steel joists and girders; (*b*) heating apparatus (l.p. hot water); (*c*) slating; (*d*) wood and timber, etc. Firms desirous of tendering are requested to forthwith apply to the Borough Engineer, Town Hall, East Ham, not later than March 5.

MARCH 5.—**Smallburgh.**—ROAD MATERIALS.—Smallburgh R.D.C. invite tenders for the supply of road materials, viz.:—Stones (broken to pass 2-in gauge and free from silt), marl, beach stones (hand picked), clay, and team labour for carting same to the several parishes throughout the district. Further particulars and forms of tender may be obtained on application to the District Surveyor, Mr. W. L. Lewis, Stalham. Bills of lading, in case of materials brought by water, to be delivered to the District Surveyor, as soon as the materials are delivered on the Staithe. Tenders to be forwarded to Mr. Fairfax Davies, Clerk to the District Council, North Walsham, not later than 3 p.m. on March 5.

MARCH 6.—**Blackrock.**—SUPPLIES.—The U.D.C. of Blackrock invite tenders for supplies for one year ending March 31, 1908, as follows:—(*a*) Brass, tin, and lead works; (*b*) cast-iron work; (*c*) sewer pipes, etc.; (*d*) road materials; (*e*) cement; (*f*) oil, colours, hardware, tools, etc.; (*g*) brushes; (*j*) bricks; (*k*) water mains and supplies. Forms for tendering, specifications, and further particulars can be obtained at the Town Clerk's office, between the hours of 10 a.m. and 2 p.m., on every week day. Sealed tenders, endorsed "Tenders for Supplies," for the whole of the supplies under any of the above headings, must be lodged in the Town Clerk's Office, Town Hall, Blackrock, Co. Dublin, not later than March 6.

MARCH 6.—**Hendon.**—MATERIALS.—The R.D.C. of Hendon invite tenders for the supply of the following materials, etc., and the execution of the following works, for twelve months from April 1, 1907:—(1) The supply of broken granite, granite chippings, and gravel; (2) the carting of material to the several parishes in the district, including day work; (3) the collection of dust and house refuse for the several parishes in the district; (4) the execution of printing work; (5) the supply of provisions, etc., to the Isolation Hospital, for six months from April 1, 1907; (6) the watering of certain roads in the district. Further particulars and forms of tender may be obtained on application to the Surveyor, Mr. J. A. Webb, Great Stanmore, to whom samples of granite and gravel must be sent. Tenders, endorsed "Tender for ——," and addressed to "The Chairman, Hendon R.D.C., Union Offices, Edgware," to be delivered not later than March 6.

MARCH 6.—**Hove.**—FLINTS.—Hove Corporation invite tenders for supplying about 3,000 cubic yds. of Coombe rock flints. They may be tendered for in parcels of not less than 200 cubic yds. each. Further particulars may be obtained at the office of the Borough Surveyor, Mr. H. H. Scott. Tenders, on forms supplied, addressed to Mr. H. Endacott, Town Clerk, Town Hall, Hove, and endorsed "Tender for Coombe Rock Flints," will be received up to 6 o'clock on March 6.

MARCH 6.—**Hove.**—STORES, ETC.—Hove Corporation invite tenders for executing street masonry and jobbing works. Also for supplying:—Ironmongery; joiners' ironmongery; gas and water pipes and fittings; paints, varnishes, and brushes; drain pipes; Portland cement; broken granite; broken quartzite; incandescent gas burners, mantles, and fittings, during a period of two years from April 1 next. Full particulars, forms of tender, and schedules may be obtained at the office of the Borough Surveyor, Mr. H. H. Scott. Tenders, on forms supplied, addressed to Mr. H. Endacott, Town Clerk, Town Hall, Hove, and endorsed "Tender for ——," as the case may be, will be received up to 6 o'clock on March 6.

MARCH 6.—**Nottingham.**—MATERIALS.—The C.C. of Nottinghamshire invite tenders for the supply and delivery of granite and slag to railway stations and wharves in Notts on or before September 29, 1907. Full information may be obtained from Mr. E. Purnell Hooley, Shire Hall, Nottingham. Tenders to be returned not later than first post March 6.

MARCH 7.—**Birmingham.**—STORES.—Birmingham Gas Department require tenders for any of the stores named in the following list, to be supplied to the Corporation gasworks in Birmingham and Swan Village, and the Wednesbury branch offices, during the year ending March 31, 1908:—Contract No. (4), iron tubes and fittings; (5) cast-iron pipes; (6) iron and steel bars, sheets, etc.; (7) iron chains, etc.; (8) steel bars; (8*a*) rake rods and heads; (8*b*) files; (8*c*) steel castings; (8*d*) hammers and auger heads; (8*e*) steel scoops; (8*f*) steel forgings; (8*g*) steel ferrules; (8*h*) conveyor pans and wheels; (8*i*) steel and brass springs; (9) iron castings; (9*a*) fire bars; (9*b*) ascension pipes, lamp columns, etc.; (10) malleable iron castings; (11) wrought-iron coke shoots; (11*b*) pusher bars and coal stops; (12) iron castings, machined or fitted; (12*a*) rollers and wheels; (12*b*) well blocks and siphons; (12*c*) worm and travelling wheels, piston rings, and rollers; (13) iron borings; (14) retort fittings; (14*a*) Grice's retort fittings; (14*b*) Walker's retort fittings; (14*c*) inclined retort fittings; (15) shovels, forks, etc.; (16) iron barrows, etc.; (17) galvanised buckets and flue pipe; (18) bolts and nuts; (18*a*) retort screws and cross bars; (18*b*) turned bolts and nuts; (19) meter stays, pipe hooks, lamp brackets, etc.; (20) nails; (21) tin plates; (21*a*) tin-plate work, lamps, etc.; (22) tin, lead, and compo. tube; (23) brass and gun-metal castings; (23*a*) copper tubes, sheets, and bars; (23*b*) gun-metal fittings; (23*c*) brass tubes, sheets, etc.; (24) wood screws, machine screws, etc.; (24*a*) joinery furniture; (24*b*) padlocks; (24*c*) rivets, wire, and gauze; (24*d*) pulley blocks; (24*e*) ironmongery; (25) valves, brass, and gun-metal; (25*a*) iron gas valves and cocks; (25*b*) fittings and special valves; (26) wood turnery, etc.; (27) Baku and other oils; (27*a*) Russian tallow and cart grease; (27*b*) colliery oil; (27*c*) boiled oil; (27*d*) solidified oil; (28) drysaltery; (28*a*) paint (various); (28*b*) paint; (28*c*) house's cement; (29) leather belting, laces, stoker's mitts, leather bags, etc.; (30) engine packing; (31) canvas hose; (31*a*) textile belting; (31*b*) patent cotton belts; (32) cotton waste and sponge cloths; (33) roofing and boiler felt; (34) india-rubber goods, delivery and hydraulic hose; (35) ropes, flax, etc.; (36) brushes; (38) wood grids; (39) red and white lead; (39*a*) glass; (40) sundries, riddles, zinc-sheeting and scrap, pressure gauges, gauge glasses, incandescent burners, incandescent mantles; (42) boiler composition; (43) wire ropes; (44) English timber; (44*a*) barrows; (44*b*) foreign timber, etc.; (44*c*) railway sleepers; (45) cement; (45*a*) lime; (45*b*) bricks (brown); (45*c*) slates; (45*d*) paving-stones, etc.; (46) lime for purifying; (47) brass fittings; (48) tools, etc.; (49) meters. Conditions and forms of tender, price 5s. each tender required, on or before March 7, with the conditions, for any portion of the stores, may be obtained at office of Mr. G. Hampton Barber, Secretary, City Gas Offices, Council House. Separate forms of tender are issued for each contract.

MARCH 7.—**Lee. Greenwich.**—GRANITE SPALLS.—Greenwich Guardians invite tenders for a cargo of about 350 tons Channel Island granite spalls for stone-breaking, Grove Park Workhouse, Lee. Forms of tender can be obtained on application at the Clerk's office, Woolwich-road, Greenwich, and must be delivered by noon on March 7.

MARCH 7.—**Sedgefield.**—STONE.—The R.D.C. of Sedgefield invite tenders for the supply and delivery of broken and unbroken stone for the repair of the roads within their district for the year ending

March 31, 1908. Forms of tender and full particulars may be obtained from Mr. T. W. Griffiths-Roberts, Surveyor, Sedgefield, Ferryhill, to whom all tenders must be sent on or before March 7, duly sealed, and endorsed "Tender for Stone."

MARCH 7.—**Watford.**—MATERIALS.—Watford U.D.C. invite tenders for the various articles for the use of the General and Electricity Departments of the Council, including the supply of lamps, lamp columns, and fittings, etc., from April 1, 1907, to March 31, 1908. The several articles must be delivered at the Council Offices, 14, High-street, Watford, the Electricity Works, or as otherwise directed. Printed forms of tender, which alone can be received, to be obtained at the Council Offices, 14, High-street, Watford. Sealed tenders, together with samples, to be sent to the offices of the Council, 14, High-street, Watford, addressed to the Clerk to the Council, on or before March 7, between the hours of 9 a.m. and 5 p.m.

MARCH 8.—**Carlisle.**—STORES.—Carlisle Corporation invite tenders for the supply of the following stores and materials, etc., in such quantities and at such times as may be ordered, for one year, from March 31, 1907:—Schedule (*a*) granite and whinstone paving stones; (*b*) Lazonby and concrete flags, edging, channelling; (*c*) Portland cement; (*d*) timber; (*e*) sewer and drain pipes, etc.; (*f*) sewer ironwork; (*g*) scavenger's brooms and machine brushes; (*j*) bricks and tiles (local manufacture); (*k*) paints, oils, and varnishes; (*m*) iron and steel, nails, screws, bolts, shovels, files, spouting, paint brushes, general ironmongery, etc. (small quantities); (*n*) glass, ropes, twine, sulphur, etc. Forms of tender, etc., may be obtained at the offices of Mr. Henry C. Marks, M.Inst.C.E., City Engineer and Surveyor, 36, Fisher-street. Tenders, sealed, and endorsed with the name of the materials tendered for, must be delivered at office of Engineer not later than March 8.

MARCH 8.—**Market Harborough.**—GRANITE—Market Harborough R.D.C. invite tenders for the supply of granite during the year ending March 31, 1908. Estimated quantity about 5,000 tons of X, XX, and XXX broken. Sealed tenders, marked "Granite," must be sent to Mr. W. H. Blount, Surveyor, Laughton, Rugby, not later than March 8.

MARCH 8.—**Morley.**—MATERIALS.—Morley Corporation invite tenders for the supply of the following materials for the year ending March 31, 1908, viz.:—Broken granite, Yorkshire setts, flags and kerbs, sewering drain pipes, pitch, creosote oil, sand, Portland cement, lime, cast-iron manhole and ventilating covers, gully grates and frames, and weed brooms. Forms of tender may be obtained on application to Mr. W. E. Putman, Assoc.Inst.C.E., Borough Engineer's Office, Town Hall, Morley. Tenders, sealed, and endorsed "Tender for ——," to be delivered at the Town Clerk's Office, Town Hall, Morley, not later than March 8.

MARCH 8.—**Smethwick.**—STORES.—Smethwick Corporation invite tenders from firms of good standing for the supply of all or any of the undermentioned materials and articles for the year ending March 31, 1908:—Broken Clee Hill granite; broken and unbroken Rowley ragstone, kerbs, circles, elbows, and setts; steel shovels and steeled picks, scrapers, mud scoops, digging forks, and galvanised nitary ash-bins, all Smethwick pattern; bricks, Staffordshire brindled and common; scavenging and dandy brushes and pickhelves; gully grates, frames, and wells; manhole and lamphole covers and cast-iron trunks, all Smethwick pattern; glazed earthenware pipes; cement, best heavy Portland; lime. All the above to be delivered at the contractor's expense to the Highway Stores, Stony-lane, except the following:—Ragstone: Separate prices to be given for delivering to Spon-lane Wharf and Rolfe-street Depôt Wharf. Forms of tender may be obtained from Mr. C. J. Fox Ailin, Borough Surveyor, Town Hall, Smethwick. Tenders, addressed to the Chairman of the Public Works Committee, to be sent under seal not later than 10 a.m. on March 8, endorsed "Tender for Stores."

MARCH 9.—**Clown.**—SLAG.—Clown R.D.C. invite tenders for the supply of best broken slag and granite, for roads, to be delivered between April 1 and November 1, 1907. Forms of tender and particulars of quantity may be obtained of Mr. J. T. Pears, Surveyor, Hollin Hill, Clown, Chesterfield. Samples of slag and material to be sent to Mr. J. T. Pears, Creswell Station, to be called for, on or before March 9, and tenders to Mr. James Snow Whall, Clerk, 66, Bridge-street, Worksop by same date.

MARCH 9.—**Coventry.**—MATERIALS.—Coventry General Works Committee invites tenders for the supply and delivery of the following materials during the year ending March 31, 1908:—Broken road stone, granite kerbs, granite setts, stoneware pipes, castings, and workmen's tools. Form of tender and full particulars may be obtained, and samples inspected, on application to Mr. J. E. Swindlehurst, City Engineer, St. Mary's Hall. Tenders to be delivered at the City Engineer's Office on or before 10 a.m. on March 9, sealed, and endorsed "Tender for Materials."

MARCH 9.—**Droitwich.**—STONE.—The Droitwich Corporation invite tenders for the supply of Rowley rag or other granite for the year ending March 31, 1908. Forms of tender and all particulars may be obtained from Mr. Hy. Hulse, Borough Surveyor, to whom samples of the materials to be supplied must be sent not later than March 8. Sealed tenders, on the Council's form of tender, endorsed "Stone," to be sent to Mr. S. J. Tombs, Town Clerk, Town Hall, Droitwich, not later than noon on March 9.

MARCH 9-12.—**Faversham.**—ROAD MATERIALS.—Faversham R.D.C. invite tenders for the supply of pit flints (broken), shingle, and fine gravel, for roads within their district. Full particulars as to the quantities required, the terms of the contract, and form of tender, may be had on application to Mr. J. G. Chittenden, District Surveyor, Ashford-road, Faversham. Sealed tenders, addressed to the Board, to be delivered at office of Mr. Allan Tassell, Clerk, at Faversham, before 4 o'clock p.m. on March 12. Samples of the material must be sent to the Surveyor's Office, Ashford-road, Faversham, on or before March 9.

MARCH 9.—**Kiveton Park.**—SLAG.—Kiveton Park R.D.C. invite tenders for the supply of best broken slag, for roads, to be delivered between April 1 and November 1, 1907. Forms of tender and particulars of quantity may be obtained of Mr. J. P. Evans, Surveyor, Council Offices, Kiveton Park Station, Sheffield. Persons tendering are requested to send a sample truck (which will be paid for), addressed to Mr. J. P. Evans, at Kiveton Park Station, on or before March 9, and tenders to Mr. James Snow Whall, Clerk, 66, Bridge-street, Worksop, by the same date. The Council will also be glad to receive quotations for boulders and granite at same date.

MARCH 9.—**Padiham.**—MATERIALS.—Padiham U.D.C. invite tenders for the supply of the undermentioned materials for one year from March 31 next:—(1) Setts; (2) kerbstones; (3) channel stones; (4) flags; (5) granite broken stone; (6) limestone; (7) earthenware pipes; (8) iron castings; (9) cement; (10) lime; (11) bricks. Printed forms of tender, etc., containing full particulars, may be obtained upon application to Mr. Gregson, A.M.Inst.C.E., Town Hall, Padiham. Sealed tenders, endorsed "Tender for Materials," to be addressed to Mr. J. C. Waddington, Clerk, Padiham, and delivered not later than March 9.

MARCH 9.—**Riccall.**—ROAD MATERIALS.—Riccall R.D.C. invite tenders for the supply of materials for the repair of the roads in their district for the year ending March 31, 1908. Forms of tender may be obtained from, and may be delivered duly filled up to, Mr. E. Townend, Clerk, Council Offices, 1, Abbey-place, Selby, not later than March 9, marked "Tender for Materials." Samples to be sent to the Council Offices by the same date.

MARCH 9.—**Westhoughton.**—MATERIALS.—Westhoughton U.D.C. invite tenders for the supply of materials and stores for the twelve months commencing April 1, 1907, viz.:—Local grit and granite paving setts; granite and limestone macadam; granite and limestone chippings; pitch and creosote; concrete street flags; stoneware sanitary pipes; scavengers' brooms; picks and spades; disinfectants; lime and copperas. A list of quantities and form of tender may be had on application to Mr. Thomas Partington, Clerk to the Council, Town Hall, Westhoughton, and, if to be sent by post, enclosing stamped, addressed envelope (foolscap). Tenders to be sent in on or before March 9.

MARCH 9.—**Worcester.**—ROAD MATERIALS.—Worcestershire C.C. Highways and Bridges Committee invite tenders for the supply of road materials, delivered to railway stations and wharves in the county, during the year ending March 31, 1908. Full particulars and forms of tender will be forwarded on application to Mr. J. H. Garrett, County Road Surveyor, Shire Hall, Worcester, not later than March 9.

MARCH 11.—**Batley.**—MATERIALS.—Batley T.C. invite tenders for the supply of:—(*a*) Flagstones, setts, pavors, and kerbs; (*b*) sanitary tubes; (*c*) pitch and oil; (*d*) cement; (*e*) broken granite; (*f*) ironmongery; (*g*) brushes, for a period of twelve months. The item (*f*) is open to local firms only. Forms of specification and tender may be obtained from the Borough Engineer, Mr. Oscar J. Kirby, at his office, Town Hall, Batley. Sealed tenders, endorsed "Tender for ——," to be addressed to Mr. J. H. Craik, Town Clerk, and delivered not later than March 11. Samples to accompany tenders in all cases.

MARCH 11.—**Eastbourne.**—MATERIALS.—Eastbourne T.C. invite tenders as follows:—For the supply of Portland cement, cast-iron goods; wrought-iron goods; tools, etc.; ironmongery (miscellaneous); oils and colours; timber; granite stone, etc.; bricks; pipes, junctions, etc. (stoneware); brooms, brushes, etc. Specifications may be seen, and forms of tender obtained, at the Borough Surveyor's Office, Town Hall, Eastbourne. All tenders must be received by Mr. A. Ernest Prescott, Borough Surveyor, on or before March 11, at noon.

MARCH 11.—**Edinburgh.**—SUPPLIES.—Edinburgh Corporation invite tenders for the following works and suplies for one year from May 15 next:—Mason, wright, plumber, gasfitter, smith, plaster, glazier, slater (three years), painter, and engineer work, cabinet-making and furnishings, and upholding house telephone and electric bell installations. Forms of offer may be obtained from the superintendent of Works, Royal Exchange. Repairs on pavements, granolithic work, cartages, gravel, sand, and whinstone. Forms of offer may be obtained from the City Road Surveyor, City-chambers. Tools, general ironmongery and hardware, general engineers' stores, jointing, and packing, etc.; sheet and bar iron, steel joists, etc.; malleable iron tubes and fittings, steel, wrought and cast iron material and smith work; brass and copper material, gunmetal castings, tinware, etc.; and electrical material for interior wiring. Forms of offer may be obtained from the Resident Electrical Engineer, Dewar-place. Brooms, brushes, drain rods, oils, paints, and general drysaltery, ropes, sacks, canvas, wood, birch for brooms, saddlery, leather, lamp bases, lanterns, globes, and glass. Forms of offer may be obtained from the Inspector of Cleaning and Lighting, 331, High-street. Rubber and leather goods, waterproofs, river and drain boots, and bath shoes; cement, lime, gasworks, pitch, bricks, and drain pipes. Forms of offer may be obtained from the Burgh Engineer, Police-chambers. Gun-metal and aluminium fire appliances, hand-wove fire hose, stand pipes, and couplings. Forms of offer may be obtained from the Firemaster, Lauriston-place. Offers must be made on the forms, and enclosed in the envelopes, which will be supplied by the various officials. Offers must be lodged with Mr. Thomas Hunter, W.S., Town Clerk, City-chambers, Edinburgh, on or before March 11.

MARCH 11.—**Erith.**—MATERIALS.—Erith U.D.C. invite tenders for the supply for the year ending March 31, 1908, of the following materials, etc.:—Broken Guernsey granite; pit flints; ballast, sand, and gravel; bricks; Tees Scoriæ blocks; Norwegian granite kerb; Kentish ragstone tar paving; Guernsey and Norway granite setts; Portland cement; drain pipes and bends; bass brooms and brooms for road-sweeping machines; shovels and picks; sewer manhole covers and gully grates; ironmongery, oil, and chandlery. Form of contract may be seen, and forms of tender obtained, at the offices of the Council. Tenders, in the form supplied, and accompanied by a sample of each of the materials quoted for, must be delivered at the offices of the Council not later than 10 a.m. on March 11, marked "Tender for ——," as the case may be.

MARCH 11.—**Haslingden.**—MATERIALS.—Haslingden T.C. invite tenders for the supplying of the following materials, etc., from April 1, 1907, to March 31, 1908:—Limestone, Welsh granite, rubble channels, kerbs, setts, flags, landings, Ashlar stone, red bricks, sanitary pipes, waste-water closets, iron castings, spades, shovels, picks, pitch and creosote oil, scavenging brushes, workmen's tools, excreta tubs, Portland cement, coal, printing, disinfectants (fluid and powder), and the hiring of horses and carts per hour. Further particulars and forms of tender may be had on application to Mr. J. Singleton Green, Borough Surveyor, on receipt of a prepaid addressed foolscap envelope. Sealed tenders must be sent in to Mr. Walter Musgrove, Town Clerk, Municipal Offices, Haslingden, on or before noon of March 11.

MARCH 11.—**Lichfield.**—GRANITE AND SLAG.—Lichfield R.D.C. invite tenders for the supply and delivery of 2½-in. granite and chippings and slag, at various stations and wharves, during the ensuing twelve months. Sealed tenders, endorsed "Tender for Granite," together with samples, must be delivered at the Clerk's Offices, Lichfield, on or before March 11. Further particulars and forms of tender may be obtained upon application to Mr. C. O. Rawstron, District Surveyor, Lichfield.

MARCH 11.—**Middleton.**—ARTICLES.—The Corporation of Middleton invite tenders for the following articles and goods:—Sundry stores for the gasworks; meters, tubes, and fittings, fireclay goods, oils, lime, vitrol, benzole, brass taps, etc. Further particulars and form of tender may be obtained from Mr. J. C. Moon, Gas Engineer, Gasworks, Middleton. Tenders, addressed to the Chairman of the Gas Committee, endorsed "Tender for Sundry Stores," are to be delivered at office of Mr. Frederick Entwistle, Town Clerk, Town Hall, Middleton, on or before March 11.

MARCH 11.—**Milton.**—GRANITE.—Milton-next-Sittingbourne U.D.C. invite tenders for broken Guernsey granite for the year ending March 25, 1908. Specifications and form of tender can be obtained on application to Mr. W. R. Warlow, Surveyor, Town Hall, Milton. Tenders, duly filled in and endorsed, must be delivered to Mr. Jno. Dixon, jun., Clerk to the Council, Town Hall, Milton-next-Sittingbourne, at the Council's Offices not later than 12 o'clock noon on March 11.

MARCH 11.—**Nuneaton.**—ANNUAL CONTRACTS.—Nuneaton and Chilvers Coton U.D.C. invite tenders for the supply of the undermentioned materials during the twelve months ending March 31, 1908:—(1) Blue bricks, kerbs, etc.; (3) disinfectants; (4) earthenware pipes, etc.; (5) granite kerbs, setts, etc.; (6) iron castings; (8) petroleum; (9) Portland cement. Conditions of contract and form of tender may be obtained on application at office of Mr. F. C. Cook, Surveyor to the Council, Council Offices, Nuneaton, and sealed tenders, endorsed "Tenders for Supplies," must be delivered not later than 12 o'clock noon on March 11.

MARCH 11.—**Portobello, Edinburgh.**—ANNUAL CONTRACTS.—Edinburgh Corporation invite tenders for the following works for one year from May 15, 1907:—Mason work, wright work, plumber work, gasfitter work, smith work, engineer work, painter work. Schedules and forms of tender may be had at the office of the City Superintendent of Works, City-chambers. Offers, which must be made on the forms, and enclosed in the envelopes supplied by the Corporation, must be lodged with the Town Clerk, City-chambers, not later than March 11.

MARCH 11.—**Rochford.**—ROAD MATERIALS.—Rochford R.D.C. invite tenders:—(1) For the supply of granite and flints for the highways within their district, for twelve months from March 31, 1907; (2) for the unloading and carting of the above materials as and when required by the surveyor. Forms of tender may be obtained from Mr. Frederic Gregson, Town Clerk, Southend-on-Sea. Tenders are to be sent not later than March 11.

MARCH 11.—**Sutton Coldfield.**—ANNUAL CONTRACTS.—Sutton Coldfield Corporation invite tenders for the supply of the following materials during the year ending March 31, 1908:—(1) Granite macadam and kerb; (2) limestone macadam and setts; (3) gravel and broken pebble stones; (4) Yorkshire or Pennant kerb; (5) Rowley setts; (6) earthenware pipes; (7) cement and lime; (8) iron castings; (9) iron and steel; (10) timber; (11) hardware; (12) oils and paint; (13) bass brooms; (14) disinfectants (Izal and Jeyes' only). Conditions of contract and forms of tender may be obtained on application to Mr. W. A. H. Clarry, Borough Surveyor, The Council House, Sutton Coldfield. Sealed tenders, on the form supplied, to be sent in not later than noon on March 11, endorsed "Tender for Materials."

MARCH 11.—**Swindon.**—MATERIALS.—Swindon Corporation invite tenders for the supply and delivery of the following materials, etc., during the twelve months ending March 31, 1908:—(1) Stone, kerbing, paving, and channel; (2) timber; (3) pipes and bricks; (4) cement and lime; (5) oils, paints, glass, etc.; (6) ironmongery, blacksmith's iron, etc.; (7) iron castings and lamps; (8) disinfectants and chemicals; (10) cast-iron pipes, etc.; (11) wrought-iron tubes, fittings, etc.; (12) general stores (for Electricity and Tramways Department). Forms of tender for items Nos. 1 to 11 and other particulars can be obtained on written application to Mr. H. J. Hamp, Borough Surveyor, Town Hall, Swindon, and intending contractors must state which forms they require. Forms of tender and all particulars respecting item No. 12 can be obtained on written application to the Tramway Manager, Mr. T. Medcalf, Electricity Works, Swindon. Patterns and samples may be inspected at the Corporation's Depôt, Cromwell-street, Swindon. Sealed tenders to reach Mr. Robt. Hilton, Town Clerk, Town Hall, Swindon, on or before 12 o'clock noon on March 11.

MARCH 12.—**Blyth.**—SLAG.—Blyth and Cuckney R.D.C. invite tenders for the supply of best broken slag for roads, to be delivered between April 1 and November 1, 1907. Forms of tender and particulars of quantity may be obtained of Mr. Frederick Hopkinson, Surveyor, Bridge-street, Worksop. Tenders and samples to be sent to Mr. James Snow Whall, Clerk, 66, Bridge-street, Worksop, before March 12.

MARCH 12.—**Faversham.**—GRANITE.—Faversham R.D.C. invite tenders, at per ton, for the supply and delivery of 1,630 tons of best Guernsey granite or Rhenish basalt, hand-broken to a 2-in. gauge, and well screened, to be delivered as under:—Alongside Town Wharf, Faversham, 950 tons; alongside Oare Wharf, near Faversham, 100 tons; alongside Conger Wharf, Leynham, 350 tons; in trucks at Selling Station, S.E. and C.R., 230 tons. The materials to be delivered at such times, and in such quantities, as the Surveyor shall direct. Form of tender and further particulars can be had on application to the District Surveyor, Mr. J. G. Chittenden, Ashford-road, Faversham. Sealed tenders, endorsed "Tender for Granite," to be delivered at office of Mr. Allan Tassell, Clerk, Council Offices, Faversham, on or before March 12, together with sample of the material.

MARCH 12.—**Herne Bay.**—ANNUAL CONTRACTS.—Herne Bay U.D.C. invite tenders for the following materials, etc., required during the period ending March 31, 1908:—(1) disinfectants; (3) stoneware pipes and stoneware goods; (4) petroleum, lubricating, and other oils; (5) lias lime and Portland cement; (6) oilman's goods, etc.; (7) tools, implements, and general ironmongery; (8) smith's work and repairs; (9) gravel and flints; (10) carting. Forms of tender, conditions, and full particulars may be had on application to Mr. F. W. J. Palmer, Surveyor to the Council, Town Hall, Herne Bay. Sealed tenders, endorsed "Tender for No. ——," must be delivered to Mr. Joseph Jubb, Clerk to the Council, Clerk's office, Town Hall, Herne Bay, not later than 12 o'clock noon on March 12.

MARCH 12.—**Holborn.**—MATERIALS.—Holborn B.C. invite tenders for the undermentioned works and materials for a period of twelve months from April 1 next:—(2) Disinfectants; (3) stone; (4) gravel, sand, and ballast; (5) cartage of materials; (6) timber; (7) iron castings; (8) baths' engineers' stores; (9) lime, cement, and bricks; (10) drain pipes; (11) brooms; (12) street orderlies' and sewermen's clothing; (16) builders' work; (18) smiths' work, and supply of tools, implements, etc.; (19) oil and chandlery. Forms of the several contracts may be seen, and forms of tender and other particulars obtained, at office of Mr. Lionel Walford, Town Clerk, Council Offices, 197, High Holborn, W.C. Separate, sealed tenders for all or any of the abovementioned works and materials, endorsed "Tender for ——," together with the names and addresses and callings of two proposed sureties, must be delivered not later than noon on March 12.

MARCH 12.—**Leeds.**—MATERIALS.—Leeds Sanitary Committee invite tenders as hereunder specified:—Horse hire for street watering; horse hire for macadam road cleansing; horse hire for ashpit cleansing (Bramley District only); brooms; brushes; sand; pea gravel; shovels, forks, drags, etc.; bolts, nuts, and screws; cart and wagon covers; wrought-iron wheelbarrows; lime (large and small); oil (engine, colza, and neatsfoot); cotton waste; repairs at destructors; timber; iron and steel; disinfectants; baskets; paints, etc. Tenders to be for twelve months, except horse hire for street watering, which will be for six summer months only. Further particulars and forms of tender, which must be adhered to, may be obtained on application to Mr. J. J. Mann, Superintendent Dock-street Depôt. Tenders, properly endorsed, to be sent to office of Mr. Robert E. Fox, Town Clerk, not later than March 12.

MARCH 12.—**Shoreditch.**—ANNUAL CONTRACTS.—The Council of the Borough of Shoreditch invite tenders for the following articles and works for one year from April 1 next to March 31, 1908 (inclusive), viz.:—(1) Highways Department—For paving, repairing, and relaying the foot-way and carriage-way pavements within the said borough, and the supply of materials (a 10*l.* Bank of England note to be deposited at the Borough Treasurer's office at the time the tender is lodged); (2) for supplying and laying patent or manufactured stone or other paving material; (3) asphalting; (4) broken granite; (5) plumbers' work; (6) smiths' work; (7) drain pipes, junctions, bends, etc.; (8) drain rods, pails, ropes, etc.; (9) timber; (10) sewer ironwork and street posts; (11) gas fittings, etc., for the public lighting of the borough; (12) lime, cement, etc.; (13) general cartage (a 10*l.* Bank of England note to be deposited at the Borough Treasurer's office at the time the tender is lodged); (14) street name plates, notice boards, writers' work, etc.; (15) ballast, hoggin, shingle, and sand (samples of the above articles can be seen at the Depôt, Flemming-street, Kingsland-road, N.); (16) Scavenging and other departments—iron, ironmongery, coach ironmongery, etc. (samples of the articles required for these departments may be seen, and forms and tenders obtained, at the Town Hall, Old-street, E.C.); (19) Electricity Works Department—(*a*) electric cables and sundries, (*b*) gas pipe and fittings, and (*c*) engineers' stores (samples may be seen at the Electric Lighting Station, Coronet-street, Hoxton, N.). Forms of tender for all the abovementioned articles can be obtained on application to Mr. H. Mansfield Robinson, Town Clerk, Shoreditch Town Hall, Old-street, E.C. Tenders must be sent, properly endorsed, to the Town Clerk before 3 o'clock on March 12.

MARCH 13.—**Dublin.**—ANNUAL SUPPLIES.—South Dublin Union Guardians invite tenders for supplies for twelve months from April 1, 1907:—Buckets; building materials, timber, cement, bricks, stone, and slate; disinfectants; earthenware; glass and glazing; ironmongery; ironwork; lime, gravel, and sand; nails; oils and colours; plumbing materials and gasfitting. In every case a preference will be given to articles of Irish manufacture. Samples of such of the articles as are taken by samples can be seen in the Master's stores at the Workhouse, where every information will be given. Sealed tenders (without any alteration therein) by intending contractors, printed forms of which can be had from the Master of the Workhouse, to be left with Mr. John P. Condon, Clerk of the Union, Board-room, James's-street, Dublin, not later than 12 o'clock noon on March 13.

MARCH 13.—**Eston.**—ANNUAL CONTRACTS.—Eston U.D.C. invite tenders for the supply of the following material, stores, etc., for the year ending March 31, 1908, viz.:—(1) Highway material, whinstone, slag, etc.; (2) team work; (5) disinfectants; (6) brooms and brushes; (7) picks shovels, oils, etc.; (8) moss litter. Specifications, forms of tender, and further particulars may be obtained on application to Mr. C. McDermid, Council's Offices, Whitworth-road, Grangetown, S.O., Yorks, to whom sealed and endorsed tenders must be delivered at the above address not later than the morning's post on March 13.

MARCH 13.—**Sutton.**—ANNUAL CONTRACTS.—Sutton (Surrey) U.D.C. invite tenders for the supply of the following materials during the year ending March 31, 1908:—(1) Broken Granite and Basalt; (2) gravel flints and ballast; (3) hand-picked surface flints; (4) granite setts and cubes; (5) wood-paving blocks; (6) granite kerbing and channelling; (7) stoneware and sanitary pipes; (8) Portland cement; (9) manganate of soda; (10) sulphuric acid; (11) disinfectants; (12) tar-paving materials; (13) ironmongery, tools, oils, paints, soaps, etc.; (14) manhole covers, gully grates, etc.; (15) street lamp columns; (16) horse hire; (17) horse forage; (19) smith's work. Conditions of contract and forms of tender may be obtained by application to Mr. C. Chambers Smith, Engineer and Surveyor to the Council, Municipal Offices, Sutton, Surrey, on forwarding a stamped addressed envelope. Sealed tenders, on the forms supplied, and endorsed "Tenders for Materials," will be received up to 3 o'clock p.m. on March 13.

MARCH 13.—**Tutbury.**—ROAD MATERIAL.—Tutbury R.D.C. invite tenders for the supply of broken granite, limestone, and slag, for the repairs of the highways, for the year ending March 31, 1908. Also tenders for carting the same materials. Printed forms of tender, containing full particulars, may be obtained from Mr. C. F. Chamberlin, Clerk, Council's Offices, Union Offices, Burton-upon-Trent; or from Mr. H. S. Tibbitt, Surveyor, Rolleston, Burton-on-Trent; and all tenders must be on the printed forms suplied, and properly filled up and sent to the Clerk not later than 10 o'clock a.m. on March 13.

MARCH 14.—**Ecclesall Bierlow.**—SUPPLIES.—Ecclesall Bierlow Guardians will, on March 20, consider tenders for the supply of the undermentioned articles for the Workhouse:—Timber; oils, colours, and varnish; brooms, brushes, and basket goods; hardware; cutlery, tin, and copper ware. Each tender must be upon a printed form, which may be obtained upon application only through the post from Mr. Thomas Smith, Clerk to the Guardians, Union Offices, The Edge, Sheffield, and must be returned before 10 o'clock on March 14. Envelopes to be endorsed "Tender."

MARCH 14.—**Leeds.**—MATERIALS.—Leeds Waterworks Committee invite tenders for the following stores to be supplied during the year commencing April 1, 1907:—Cast-iron pipes (3-in. to 12-in. diameter); sluice valves (3-in. to 9-in. diameter); white gaskin; tarred gaskin; cotton waste; leather; oils; small iron castings; fire hydrants. Specifications and form of tender may be obtained, and samples inspected, at the Waterworks' Engineer's Office, Municipal-buildings, Leeds, between the hours of 10 a.m. and 4 p.m. Tenders, properly endorsed, to be sent to the Town Clerk's Office, Town Hall, Leeds, on or before March 14, at 10 a.m.

MARCH 14.—**Newcastle-on-Tyne.**—MATERIALS, ETC.—Newcastle-upon-Tyne Town Improvement and Streets Committee invite tenders for the supply of the undermentioned materials during the twelve months ending March 31, 1908, viz.:—(1) Sanitary pipes; (2) cement; (3) oils and paints; (5) clot lime; (6) lime mortar; (7) road stones; (8) Caithness flags; (9) freestone flags; (10) artificial flags; (11) granite paving stones; (12) granite kerb stones; (14) pitch, tar, and creosote oil; (15) hose-pipes; (16) iron, steel, and horse-shoe nails; (17) shovels; (18) disinfectants; (19) gulley grates, ventilator covers, etc.; (20) scavenging brooms, etc.; (21) privy pans; (22) timber; (23) lead washings; (24) bricks. Forms of tender may be obtained on application at the City Engineer's Office, Town Hall. Sealed tenders, addressed to the "Chairman of the Town Improvement and Streets Committee," and endorsed "Tender for Stores," must be left at the Committee Clerk's Office, Town Hall, on or before March 14.

MARCH 15.—**Exeter.**—GOODS.—The City of Exeter invite tenders for the supply and delivery of the following goods for a period of one year ending March 31, 1908:—(1) Bricks; (2) bass brooms, and refilling stocks of sweeping machine; (3) Portland cement; (4) building lime; (5) cast-iron pipes; (6) granite channelling and kerb; (7) York stone flags; (8) concrete flags; (9) painting and decorating; (10) stoneware pipes; (11) miscellaneous iron castings; (12) stone; (13) timber (English and foreign); (14) ironmongery; (15) oils; (16) plumbers' material and labour; (17) asbestos goods. Printed schedules, specifications, and form of tender can be obtained on application to Mr. Thomas Moulding, City Engineer and Surveyor, Municipal Offices, Exeter. Sealed priced-out schedules, endorsed with the heading to which the tender applies, must be sent to the Town Clerk Municipal Offices, Exeter, on or before March 15.

MARCH 15.—**Godstone.**—MATERIALS.—The R.D.C. of Godstone invite tenders for the following for the year ending March 31, 1908:—(*a*) Supply of Quenast granite; (*b*) supply of flints (hand-picked); (*c*) supply of tools for road work; (*d*) supply of oils, tallow, tools, cotton waste, and other requisites for steam rollers; (*e*) cartage of road materials from quarries, railway stations, etc.; (*f*) team labour, water and grit carts, in connexion with steam rolling; (*g*) cement, bricks, gully gratings, glazed socket pipes, etc. Forms of tender, with all particulars and conditions, can, on and after March 3, be obtained from the office of Mr. J. George-Powell, C.E., Engineer and Surveyor to the R.D.C. of Godstone, Godstone, Surrey, to whom all tenders must be sent in on or before March 15.

MARCH 16.—**Burnley.**—MATERIALS.—Burnley Highways and Sewage Committee is prepared to receive tenders for the supply of setts (local), flags, kerb, channel, bricks (red), gravel, granite macadam, cement, pitch, creosote, earthenware pipes, ironwork (street grates, etc.), lime, limestone, etc., for the year ending March 31, 1908. Specifications and forms of tender may be obtained on application to the Borough Engineer, Mr. G. H. Pickles, Assoc.M.Inst.C.E., Town Hall, Burnley. Sealed and endorsed tenders, addressed to "The Chairman of the Highways and Sewage Committee," must be left at office of Mr. Peregrine Thomas, Town Clerk, Town Hall, Burnley, not later than March 16.

MARCH 16.—**Eccles.**—STORES.—Eccles Corporation invite tenders for the supply and delivery of the undermentioned goods during the year ending March 31, 1908:—Sulphur candles, disinfecting powder, soluble and non-poisonous disinfecting fluid, scavengers' brooms, refill rotary brushes, shovels, forks, ashbins, colza oil. Particulars and forms of tender may be obtained from Mr. G. W. Laskey, Town Hall, Eccles. Sealed tenders are to be forwarded to Mr. Edwin Parkes, Town Clerk, Town Hall, Eccles, by 10 a.m. on March 16, in the official envelope, duly endorsed. Samples of various materials to be tendered for may be seen at the Town Hall at 9 o'clock a.m. and 2 o'clock p.m. any day except Saturday.

MARCH 18.—**Formby.**—STORES.—Formby U.D.C. Highways Committee will meet on March 18 to consider tenders for contracts for one year from April 1, 1907, as under:—(1) Macadam and chippings; (2) Haslingden or Yorkshire setts; (3) concrete flags; (4) Portland cement; (5) pitch and tar; (6) glazed stoneware drain pipes; (7) cast-iron ventilating pipes; (8) cast-iron street gullies; (9) bass brooms. Forms of tender and copies of the specification and conditions may be obtained at the Clerk's office during office hours. Sealed tenders, to be endorsed "Annual Contracts," to be in hands of Mr. E. H. Bond, Clerk to the Council, Council Offices, Formby, not later than 10 o'clock a.m.

MARCH 18.—**Maidstone.**—ROAD MATERIALS.—Maidstone U.D.C. invite tenders for the supply of road materials, etc.:—Guernsey granite, Cornish elvan, Cherbourg quartzite, Kentish ragstone, surface-picked flints, Aylesford pit flints, Aylesford gravel, Aylesford sand, ragstone paviors, ragstone kerb, washed Wateringbury shingle, tarred ragstone concrete, Portland cement, Thames ballast. Specifications, forms of tender, and all other information may be obtained on application at the office of the Borough Surveyor, Mr. T. F. Bunting, at the Fair Meadow, Maidstone. Sealed tenders, which will only be received on the forms supplied, endorsed "Tender for the supply of ——," must be delivered at office of Mr. S. Lance, Monckton, Town Clerk, Maidstone, not later than March 18. Samples of the materials which it is proposed to supply must be sent to the office of the Borough Surveyor.

MARCH 18.—**Prestwich**—MATERIALS.—Prestwich U.D.C. invite tenders for the following for the year ending March 31, 1908:—(2) Disinfectants; (3) road materials; (4) Portland cement and lime; (5) earthenware pipes; (6) Royal daylight oil; (7) paint; (8) cement flags; (9) scavenging brushes; (10) iron manholes and lamp-eye covers, grids, and gullies; (11) tools. Forms of tender and full particulars can be obtained on application to the Surveyor, Council Offices, Chester Bank, Prestwich. Sealed tenders, endorsed with the names of the materials tendered for, accompanied by samples of each class of material, and addressed to Mr. Lewis A. Orford, Law Clerk to the Council, Council Offices, Chester Bank, Prestwich, to be delivered not later than 12 noon on March 18.

MARCH 18.—**Rathmines.**—SUPPLIES.—The U.D.C. of Rathmines and Rathgar invite tenders for the supply of the following articles for the year ending March 31, 1908:—Brushes, timber, paints and oils, iron castings, ironmongery, ash buckets, Portland cement, stonecutter, lead pipes, road materials, plumbing work, fire-clay goods, smith work. Tenders, which must be on the official form supplied for the purpose, and which can be obtained at the engineer's office on and after March 5, must reach Mr. F. P. Fawcett, Clerk to the Council, Town Hall, Rathmines, on or before March 18.

MARCH 20.—**Strood.**—MATERIALS, ETC.—Strood R.D.C. invite tenders from April 1 next for one year for the undermentioned materials and carting required in certain parishes of the district:—For granite spalls, delivered at Strood Union Workhouse; for broken Guernsey and other granites, quartzite, and basalt; for Kentish ragstone; for surface-picked flints; for carting at a price per yard; for carting generally at a price per day. The Council also invite tenders for 250 yds. of local pit flints, to be delivered in the parish of Chalk. Full particulars may be obtained on application to Mr. J. E. Povey, Clerk, Union and Council Offices, Strood, Kent. Tenders, upon the printed forms only, must be delivered to the Clerk, sealed, and endorsed "Tender for ——," as the case may be, not later than 6 p.m. on March 20.

MARCH 22.—**Eccles.**—MATERIALS.—Eccles Corporation invite tenders for the supply of the following materials for the year ending March 31, 1908:—Setts (granite, grit, Lonkey paving, crossing, and flag rock); flags (best and second barns); flags (concrete); flags (manhole, lamp-eye, and gully); kerbs (rough, straight, and circular); channel stones (straight and circular); broken rubber (per ton); granite, macadam, and chippings; prepared tarred limestone; limestone cube chippings; gravel (pit or river, per ton); castings; pitch, creosote, and tar; Simpson's patent street gullies; stoneware passage gullies; stoneware pipes, bends, and junctions; cinders (per ton); mortar (per ton). Forms of tender and particulars may be obtained upon application to Mr. Thomas S. Picton, C.E., Borough Engineer and Surveyor. Sealed tenders, which must be enclosed in an official envelope, endorsed "Tender for Highway Materials," must be forwarded to Mr. Edwin Parkes, Town Clerk, Town Hall, Eccles, not later than noon on March 20. Samples of all materials tendered for must be supplied, carriage paid, to the Borough Engineer, not later than March 22.

NO DATE.—**Abingdon.**—STONE.—The Abingdon R.D.C. invites tenders for the supply of about 3,000 tons of road stone. Forms of tender can be obtained of Messrs. B. & E. M. Challenor, Clerks to the Council, the Council Offices, 59, Stert-street, Abingdon.

NO DATE.—**Culham.**—STONE.—The Culham R.D.C. invite tenders for the supply of about 1,600 tons of Hartshill and other stone. For forms of tender apply to Mr. Bromley Challenor, Clerk to the Council, The Council Offices, 59, Stert-street, Abingdon.

Public Appointments.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in
*CLERK OF WORKS	Metro. Borough of Deptford	3*l.* 3s. per week	March 6
*QUANTITY SURVEYOR	Walthamstow Educa. Com.	Not stated	March 7
*ASSISTANT ENGINEER AND SURVEYOR	Wimbledon Corporation	200*l.*	March 13

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*TIMBER, 103, LAVENDER-HILL, BATTERSEA—On the Premises	Joseph Hibbard & Sons	March 4
*DEALS, BATTENS, ETC.—Great Hall, Winchester House, Old Broad-street, E.C.	Churchill & Sims	March 6
*FREEHOLD BUILDING SITE, WHITECROSS-STREET, E.C.—At the Mart	Norton, Trist, & Gilbert	March 11
*ENGINEER'S PLANT AND TOOLS, UNION-STREET, BOROUGH, S.E.—On the Premises	Fuller, Horsey, Son, & Casseli	March 15
*FREEHOLD BUILDING PLOTS, FINCHLEY—Torrington Hotel, North Finchley	Charles Sparrow & Son	March 18
*FREEHOLD BUILDING SITE, BOROUGH MARKET—At the Mart	Furbers	March 19
*SLATE-WORKING PLANT, ETC., HARROW-ROAD, W.—On the Premises	Fuller, Horsey, Sons, & Cassell	March 21
*FREEHOLD BUILDING ESTATE, WILLESDEN—At the Mart	Hampton & Sons	March 25

LEGAL.—*Continued from page 273.*

fendant wrote complaining of an overcharge of 3*l.* odd, which applied to what was known as wing frames.

Mr. Coumbe, counsel for plaintiff, said the question resolved itself into one of trade custom.

Plaintiff and several expert witnesses stated that the recognised custom of the trade was, in cases of wing frames, that the measurement was always over-all—viz., the greatest height of the woodwork to which the wing was attached and the greatest breadth.

Defendant's solicitor: Then it amounts to this—that plaintiff is charging for work that he has not done.

Judge Edge: That is so. I quite agree. But this is not the only trade where charges are made for work not actually done. What has to be considered are the circumstances attending such work.

The evidence of another joiner showed that the charge was justified by the fact that the wing frames took longer to make.

Defendant said it meant that he had been charged 9d. per foot for brickwork which plaintiff never supplied. Why had the brickwork been measured in?

Judge Edge said that in his opinion the custom had been established. When he was at the Bar he had considerable experience in building cases, and he knew very well, as in the case of wing frames, that where one part had to be made to fit into another, that it meant a considerable amount of time and trouble. Therefore an extra allowance should be made, as was the case with bricklayers who, in making window spaces, measured over the whole as if the window had been made entirely of brickwork. It seemed only reasonable that joinery work should be measured in the same way, and his verdict would be in plaintiff's favour for 7*l.* 18s. 5d. with costs.

LIVERPOOL COUNTY COURT ACTION.

AT the Liverpool County Court, on the 21st ult., his honour Judge Shand delivered his considered judgment in an action in which Messrs. Frederick Wilkinson & Co., glass merchants, Hatton-garden, Liverpool, sued Messrs. W. Griffiths & Sons, sanitary engineers, Great George-street, Liverpool, for 12*l.* 7s. balance of account for work done and materials provided in connexion with the new Post Office at Bootle, in accordance with the plaintiffs' estimate of November, 1903. Messrs. J. Paterson & Son, builders, 60, Soho-street, Liverpool, were made third parties by the defendants on the ground that they claimed to be indemnified by Messrs. Paterson, the main contractors for the building, against liability in respect of the balance, on the ground that they were the head contractors for the work, and that the defendants were sub-contractors under Messrs. Paterson, and the plaintiffs were sub-contractors under them subject to the same condition.

His honour, in giving judgment, said that the plaintiffs undertook to do the glazing work for a specified price, subject to the same conditions that the defendants were under to Messrs. Paterson & Son. The plaintiffs admitted that they knew that there were conditions imposed upon the defendants which were not set out in the copy of that portion of the specification which applied to the glazing which they tendered for, and, further, that they could have found those conditions in the main contract of Messrs. Paterson if they chose to refer to it. After referring to the main contract, his honour said that made it obligatory upon Messrs. Paterson and on his sub-contractor—the plaintiff—to protect and preserve entire and uninjured the whole of the work and materials, so far as it applied to the glazing, until the Post Office at Bootle had been completed. And, further, if any injury or disfigurement should be done thereto by accident of any description or by any workmen employed or by any other means whatsoever, in any such case the builder and in his (the Judge's) opinion by the nature of the contract, must be included the name of his sub-contractor—should completely repair and replace the same, as the case might be, at his own cost, so that the condition of the work in every part would be perfect and in a clean state. It was true the plaintiffs did not take the trouble to look at the main contract, but that fact did not alter its effect. He therefore thought that the defendants were justified in keeping back from the plaintiffs so much of the money as had been deducted by Messrs. Paterson from them, the two contracts being identical in amount. The plaintiffs' action against the defendants, therefore, failed, and the defendants were entitled to judgment against the plaintiffs with costs. In regard to Messrs. Paterson, who had been brought in as third parties by the defendants, he thought they (defendants) were wrong, and had no legal claim against them. The defendants, therefore, must pay the third party's costs, and, in his opinion, they were not entitled to recover from the plaintiffs.—*Liverpool Courier.*

Patents of the Week.

APPLICATIONS PUBLISHED*.

1,958 of 1906.—W. C. EDWARDS: *Air-heating Appliances for Domestic Stoves and Fireplaces.*

THIS consists in the combination of an open fireplace or domestic grate with an air-heating chamber adjoining the back of the fireplace, the front of the said air-heating chamber being inclined forward and connected to the back by an inclined flue.

2,678 of 1906.—G. A. URE: *Manufacture of Sheet Metal Ovens and Other Parts of Cooking Ranges and Stoves.*

This relates to the manufacture of sheet metal ovens and other sheet metal parts of cooking ranges and stoves, and consists in stamping or pressing out the metal at the parts constituting the angles or corners so as to form recessed, grooved, fluted or beaded portions, thereby giving increased strength and rigidity to the structure.

5,437 of 1906.—W. P. KLOBUKOWSKI: *Fireplaces.*

This relates to air-heating stoves or fireplaces with air circulations, and consists in the manner of securing durable joints for the fireplace by forming them with channel-shaped upper rims in which the lower rims of the upper plates stand, the rims of the side plates being bent behind in order to engage with the channel-shaped side rims of the back fire plates.

5,680 of 1906.—J. C. ETCHELLS: *Gripping Gear for the Hand Ropes of Lifts and Hoists.*

This relates to a gripping gear for the hand ropes of lifts and hoists, consisting of two separate parts, one part comprising a striking plate and rope-gripping device affixed to the cage and the other part comprising a rocking lever pivoted to the jamb or lintel of the door to engage the striking plate, and which is withdrawn out of the path of the striking plate when the door is shut and fastened.

6,813 of 1906.—A. PYE-SMITH: *Non-slipping Treads for Steps, Stairs, Pavements, and the like.*

This relates to the manufacture of non-slipping treads, and consists in securing a block of non-slipping material by a temporary attachment to the mould box, the attachment being subsequently removed and the block remaining in the casting with its non-slipping face flush with the face of the casting.

9,785 of 1906.—S. W. BERGLUND: *Method of Manufacturing Bricks from Calcareous Sand or the like.*

This relates to the manufacture of bricks from calcareous sand or the like, and consists in first reducing the sand to a muddy condition with water and allowing the mixture so settle in moulds, and subsequently hardening while still immersed by the action of water raised to a temperature exceeding 100 deg. Centigrade.

10,597 of 1906.—W. P. WENHAM: *Casement.*

This relates to a casement, and consists of a supplementary frame hinged to the window frame or mullion and adapted to be turned in one direction, a glazed casement hinged to the said supplementary frame and adapted to be turned in the same direction with the supplementary frame, and in the opposite direction without the supplementary frame, and a compound fastening device for the said supplementary frame and glazed casement.

17,067 of 1906.—F. JORDAN: *Blocks for use in the Construction of Chimney and Ventilating Flues and the like.*

This relates to a flue block, comprising a plastic block having an interior channel and offsets or recesses from said channel and a sheet metal pipe having portions embedded in the said block, and thereby secured to the block, the said sheet metal pipe constituting the wall of the interior channel of the block, and forming the inner walls closing the said recesses.

18,247 of 1906.—H. S. PALMER: *Machines for Making Concrete Building or other Blocks.*

This relates to a moulding machine having a mould box wall or walls pivotally mounted upon an adjustable slider bar or bars, and having means to raise the wall or walls to the vertical position, an automatic lock adapted to secure the wall or walls in the vertical position upon the said wall or walls arriving at that position: the locking device comprising adjustable lugs or projections upon the end, pivoted walls adapted to engage suitable co-operating devices on the bars employed for raising the side walls of the mould box.

19,802 of 1906.—F. M. COLEMAN: *Sash Locks.*

This relates to a sash lock comprising a bolt carried by one of the sashes and normally projected by a spring into engagement with the other sash, a sleeve secured upon the first-mentioned sash and having a cam slot in which rides a pin radiating from a spring-pressed bolt, which is slidably and rotatably mounted within the sleeve and normally projected therefrom and adapted to engage the window frame, there being a flexible connexion between said pin and the first-mentioned bolt, said connexion passing partly around guide pulleys, whereby the partial rotation of the bolt within the said sleeve will cause it to move longitudinally out of engagement with the window frame, and will retract the other bolt from locking position, there being means upon one of the sashes for holding the bolts in retracted positions.

24,819 of 1906.—P. KUPELWIESER: *Sash Windows.*

This relates to a sash window having the side rails of the window frame comprising three sashes adapted to slide in the same vertical plane, the middle sash being always connected with the lower sash by pulley gear and a catch which every time the middle sash is raised and is nearly in its highest position is adapted alternately to engage the upper sash to prevent it from following the middle sash when the latter is lowered, and to liberate the upper sash to permit it to follow the middle sash when this is lowered.

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

26,556 of 1906.—W. E. DAUGHERTY: *Window Sashes.*

This consists in the combination of a sash frame having the glass-receiving opening rabeted, one side of the rabeted portion being provided with a horizontal groove, said frame having outwardly extending openings in communication with said groove, retaining strips fitted in said groove, a plate fitting over the opening in the frame, a plunger operating in said opening and engaging with the retaining strips, said plunger being provided with a stem which passes through a perforation in the above-mentioned plate, and a spring interposed between said plate and the plunger to hold the latter normally in engagement with the retaining strips.

6,902A of 1906.—W. H. FISHER: *Mould Boxes for Making Artificial Stone Blocks, and the like.*

This relates to a mould box for making artificial stone blocks and the like having both ends and sides hinged to the bottom of the blocks in combination with a dividing partition or partitions normally fixed to the base of the box.

11,341 of 1906.—A FIRTH: *Bonding or like Bricks or Blocks.*

This relates to a bonding or header brick or block or "through" having a recess in its upper face and a downwardly-inclining channel leading therefrom to one end of the brick, the channel preferably being made at different levels to provide between the inner and outer ends thereof a weathering face or wall.

19,953 of 1906.—W. L. VELTEN: *Stone-crushing Machines.*

This relates to a stone-crushing machine of the type in which the movable jaws are mounted so as to rock from above downwards, and consists of an arrangement of the jaws in pairs pivotally connected together so as to form a double-acting machine.

24,477 of 1906.—C. R. WEAVER: *Concrete Mixers.*

This relates to a concrete mixing and handling apparatus having in combination a plurality of hoppers having bottom openings and adapted to nest one within the other and means to connect the hoppers in series and permit them to be successively raised from their nested position to cause the material to pass successively from one hopper to the other as they are raised.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

February 14.—By TOOTELL & GREEN (at Maidstone).

Sutton Valence, Kent.—Sparks Hall Farm, 63 a. 3 r. 14 p., f., y.r. 62*l.* 10s. £1,700

February 15.—By G. B. HILLIARD & SON (at Chelmsford).

Billericay, Essex.—Freehold business premises, with goodwill of corn merchant 1,350
Back-lane, two cottages, stable and building plot, f. 250

February 16.—By SLEE & SON (at Okehampton).

Inwardleigh, Devon.—Narracott farm, 375 acres, f. 3,000

February 18.—By JONES, LANG & CO.

City.—13 to 21, West Smithfield and 22 to 26, Hosier-la., area 14,180 ft. let on building lease, u.t. 90 yrs., at per annum 2,140

February 19.—By FRANCIS DOD & CO.

Stoke Newington.—16, Lordship-ter., u.t. 9½ yrs., g.r. 5*l.*, p. 215
Hackney.—4, 6, and 8, Dunloe-st., u.t. 20 yrs., g.r. 8*l.* 4s. 6d., w.r. 119*l.* 12s. 455
West Kensington.—65, Sinclair-rd., u.t. 72 yrs. g.r. 16*l.*, p. 500

By ELLIS, COPP, & CO.

East Sheen.—33 to 40, Hampton-sq., u.t. 39½ yrs., g.r. 42*l.*, w.r. 156*l.* 290

By HORNE & CO.

Finsbury Park.—1 and 9, Electric-parade (s.), u.t. 87½ yrs., g.r. 14*l.*, y.r. 130*l.* 1,150
Crouch End.—38, Topsfield-parade (s.), f., y.r. 100*l.* 1,300
Topsfield-parade, f.g. rents 40*l.*, reversion in 85 yrs. 1,060
Highgate.—1, Station-parade (s.), u.t. 87¼ yrs., g.r. 14*l.*, y.r. 125*l.* 1,500
Wood Green.—351 and 357, High-rd. (s.), f., y.r. 110*l.* 1,440

By HUNTER & HUNTER.

Walworth.—Grosvenor-ter., i.g. rents 181*l.* 18s., u.t. 25½ to 44 yrs., g.r. 128*l.* 5s. 748
Clapham.—Bromfelde-rd., i.g.r. 18*l.* 18s., u.t. 55 yrs., g.r. nil 330
Newington.—Canterbury-mews, i.g.r. 13s., u.t. 36¾ yrs., g.r. 3*l.* 130
Peckham.—Meeting House-la., i.g.r. 20*l.*, u.t. 57 yrs. g.r. 12*l.* 13s. 4d. 115
South Lambeth.—Wheatsheaf-la., i.g. rents 55*l* 10s., u.t. 9 yrs., g.r. nil, with reversion 360
Battersea.—Tidemore-st., i.g. rents 35*l.*, u.t. 37 yrs., g.r. 1*l.* 460
Pimlico.—Lillington-st., i.g. rents 28*l.* u.t. 27 yrs., g.r. 4*l.*, with reversion 460
Commercial-rd., i.g. rents 75*l.*, u.t. 16 yrs., g.r. 12*l.* 10s., subject to reversionary lease 285
Chelsea.—Hugh-st. i.g. rents 48*l.*, u.t. 20 yrs., g.r. 10*l.*, with reversion 420
Lincoln-st., i.g.r. 16*l.* 16s., u.t. 35½ yrs., g.r. nil 25

Fulham.—Cedar-rd., i.g. rents 42*l.*, u.t. 44 yrs., g.r. 2*l.* 10s., with reversion £610
Armadale-rd., i.g. rents 12*l.*, u.t. 66 yrs., g.r. 5*l.* 130
Bethnal Green.—Selby-st., i.g. rents 165*l.*, u.t. 12 yrs., g.r. 34*l.* 10s. 700
Stratford.—Reynolds-rd., i.g. rents 60*l.*, u.t. 65¾ yrs., g.r. 27*l.* 10s. 510

By WHEELER & WHEELER.

Muswell Hill.—12, Delaporte-gdns., u.t. 90 yrs., g.r. 10*l.* 10s., p. 400

By C. & H. WHITE.

Clapham.—Claylands-rd., f.g.r. 21*l.* 7s., reversion in 16 yrs. 1,210
Palfrey-pl., f.g.r. 12*l.*, reversion in 59 yrs. .. 355
Lambeth.—Duke-st., i.g. rents 82*l.*, u.t. 2 yrs., g.r. 8*l.* 105
Newington.—51, Grosvenor-ter., u.t. 34 yrs., g.r. 6*l.*, y.r. 38*l.* 275
Clapham.—69 and 71, Trigon-rd., u.t. 17 yrs., g.r. 8*l.*, y.r. 62*l.* 350

By GEORGE LOVEITT & SONS (at Coventry).

Foleshill, Warwick.—4, Broad-st., f., y.r. 85*l.* .. 620
Coventry, Warwick.—16 and 17, Market-pl. (s.), f., y.r. 120*l.* 3,500
1 to 8, Brookville-ter., f., q.r. 123*l.* 1,675
7 and 8, Jesson-st., f., y.r. 49*l.* 970
Little Park-st, "Banner House," f., y.r. 74*l.* (2-9th shares) 225

By J. M. LEEDER & SON (at Swansea).

Llanddewi, Glam.—Surlage Castle Farm, 62 a. 2 r. 37 p., f. 1,930

February 20.—By HUNTER & HUNTER.

Deptford.—Hales-st., f.g.r. 10*l.* 10s., reversion in 12 yrs 240
Battersea.—Stewarts-la., West, f.g.r. 12*l.*, reversion in 12 yrs 480
Regent's Park.—Cumberland Market i.g. rents, 86*l.*, u.t. 18 yrs., g.r. 55*l.* 360
Albany-st., i.g. rents 22*l.* u.t. 17½ yrs., g.r. 10*l.* 120
27, Albany-st., u.t. 17½ yrs., g.r. 8*l.*, y.r. 90*l.* 470
Hampstead Road.—Robert-st., i.g. rents 96*l.* 6s. 6d., u.t. 16½ yrs., g.r. 32*l.* 640
69, Robert-st., (s.), u.t. 16½ yrs., g.r. 4*l.*, y.r. 50*l.* 330
William-st., i.g.r. 21*l.*, u.t. 15¾ yrs., g.r. 7*l.* . 135
Hackney.—Hindle-st., i.g. rents 30*l.* 2s., u.t. 7 yrs., g.r. 7*l.* 19s 105
Kingsland.—26, 28, 30, and 38, Downham-rd.; and 34, Hertford-rd., q.r. 138*l.* 18s., also i.g. rents 66*l.* 10s., u.t 12¾ yrs., g.r. 5*l.* 630
St. John's Wood.—Cockrane-st., i.g. rents 143*l.* 10s., u.t. 13 yrs., g.r. 26*l.* 5s. 670
Hyde Park.—6A, Frederick-mews, profit rental of 50*l.*, u.t. 12¾ yrs. 380
Bayswater.—Talbot-rd., i.g. rents 25*l.*, u.t. 39 yrs., g.r. 16*l.* 130
Battersea.—77, Culvert-rd., u.t. 62 yrs. g.r. 4*l.* 10s., y.r. 41*l.* 310
Belgravia.—52, Chester-ter., u.t. 14 yrs., g.r. nil, y.r. 70*l.* 470
Clerkenwell.—16 and 17, Tysoe-st. (s.), u.t. 8¾ yrs., g.r. 8*l.*, y.r. 120*l.* 410
Kennington.—20 to 26, 30 to 40 (even), Kibworth-st.; also 15, 17, and 19, Madrid-pl., u.t 18 yrs., g.r. 32*l.* 10s., w.r. 330*l.* 4s. 1,100
South Lambeth.—26 to 34 (even), Neptune-st., u.t. 8 yrs., g.r. 10*l.*, w.r 128*l.* 14s. 250
Camberwell.—37 to 43 (odd), Kenbury-st., u.t. 4 yrs., g.r. 13*l.* 16s., w.r. 161*l.* 4s. 135
Mile End.—87 to 93 (odd), Exmouth-st., u.t. 6½ yrs., g.r. 15*l.*, w.r. 148*l.* 8s. 250
9 to 15 (odd), Willow-st., u.t. 23 yrs., g.r. 5*l.* 5s., w.r. 110*l.* 10s. 440
Chelsea.—35, Sydney-st., u.t. 18 yrs., g.r. 6*l.*, y.r. 55*l.* 330
11, Cheyne-row, u.t. 30¾ yrs., g.r. 7*l.*, q.r. 42*l.* 270
Lambeth.—36, Sutton-st., u.t. 9 yrs., g.r. 6*l.* 10s., w.r. 36*l.* 8s. 115

By B. BAILEY & CO.

Bethnal Green.—Green-st., the plant, stock-in-trade, and goodwill of a marble merchant .. 2,250

By FIELD & SONS.

Bermondsey.—230, Fort-rd., u.t. 28 yrs., g.r. 5*l.*, w.r. 33*l.* 16s. 220

By MARTEN & CARNABY.

Dulwich.—111, Thurlow Park-rd., u.t. 51 yrs. g.r. 16*l.* 7s. 6d., e.r. 120*l.* 1,710
Wandsworth.—76, 78, and 80, Pirbright-rd., u.t. 96 yrs., g.r. 18*l.*, e.r. 101*l.* 8s. 550

By J. J. HILL & WEAVER.

Marylebone.—Langham-st., "The Yorkshire Grey" p.h.; and adjoining premises, profit rental of 101*l.*, u.t. 35 yrs. 1,500

By DRYSDALE, NURSE, & CO.

Stoke Newington.—90, Queen Elizabeth's-walk, u.t. 69 yrs., g.r. 11*l.* 11s., e.r. 55*l.* 530

By STIMSON & SONS.

Wimbledon.—Park View-ter., etc., f.g. rents, 119*l.* 6s., reversion in 92 yrs. 2,980
Peckham.—Edith-rd., f.g. rents 28*l.*, reversion in 57 yrs. 650
Norwood.—Eagle hill, f.g. rents, 15*l.* 15s., reversion in 45¾ yrs 310
Holloway.—Stock Orchard-cres., i.g. rents 20*l.* u.t. 35½ yrs., g.r. 2*l* 265
Bermondsey—304 to 314 (even), Lynton-rd., u.t. 31½ yrs., g.r. 31*l.* 10s., w.r. 234*l* 1,200
Peckham.—76, Lugard-rd., u.t. 69 yrs., g.r. 4*l.* 10s., w.r. 35*l.* 2s. 180
Lambeth.—6, Lower Marsh (s.), u.t. 25 yrs., g.r. 20*l.*, e.r. 75*l.* 210

By C. H. & J. W. WILLMOTT.

Marylebone.—25, Shouldham-st., f., y.r. 45*l.* .. 820

By SAMUEL WOOLRAUCH.

Bloomsbury.—52 to 58, High-st., (shops and flats), u.t. 85yrs., g.r. 750., y.r. 1,305*l.* 475

WORSFOLD & HAYWARD (at Dover).

Dover, Kent.—91, Snargate-st., (s.), u.t. 25 yrs., g.r. 16*l.* 240
14, Stembrook, f., w.r. 14*l.* 6s. 105
28 and 30, Hardwicke-rd., f., w.r. 41*l.* 12s. .. 445
Churchill-rd., "Rose Cottage," f., p. 210
Shepherdswell, Kent.—1 to 6, Hillside-cottages, f. 905
Eythorne-rd., "Naburn," f., y.r. 28*l.* 5s. 515
Main-rd., five plots of land, f. 186

February 22.—By MAPLE & Co.

Kingsbourne Green, Herts.—"Verona House," and 10 a. 0 r. 34 p., f. and c. £1,500

By MARTIN, WHITE & Co.

Dulwich.—153, East Dulwich-gr., u.t. 57 yrs., g.r. 16*l.* p. 390

By MATTHEWS, MATTHEWS, & GOODMAN.

Kentish Town.—8, Castle-rd. (s.), u.t. 28 yrs., g.r. 6*l.*, y.r. 36*l.* 270

By MONTAGU & ROBINSON.

City.—Bury-st., f g.r. 160*l.*, reversion in 67 yrs. 4,525

By T. D. PEARCEY.

Regent's Park.—8, Mornington-rd., u.t. 33 yrs., g.r. 5*l.*, p. 425

By SELFE & Co.

King's Cross.—7, 8, and 9, Vernon-sq., u.t. 11¾ yrs., g.r. 10*l.* 10s., y.r. 110*l.* 450

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold, p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum: yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. beerhouse; p.h. for public-house; o. for office; s. for shops; ct. for court.

MEETINGS.

FRIDAY, MARCH 1.

Royal Sanitary Institute.—Professor R. Ross, F.R.S., D.Sc., on "Points of Interest Connected with Tropical Sanitation," illustrated by lantern slides. 5.30 p.m.

Royal Sanitary Institute (Lectures for Sanitary Officers). Dr. E. J. Steegmann on "Elementary Physics." 7 p.m.

Institution of Mechanical Engineers.—An extra meeting, to continue discussion on "The Eighth Report to the Alloys Research Committee, on the Properties of Alloys of Aluminium and Copper." By Professor H. C. H. Carpenter, M.A., Ph.D., and Mr. C. A. Edwards. 8 p.m.

SATURDAY, MARCH 2.

Royal Sanitary Institute.—Discussion on "The Bacterial Treatment of Sewage, with Special Reference to the Biolysis of Organic Nitrogen," to be opened by Mr. W. D. Scott-Moncrieff. 11 a.m.

Royal Sanitary Institute (Demonstration for Sanitary Officers).—Inspection at the Battersea Disinfecting Station, Mortuary, and Shelter. 2.15 p.m.

Royal Institution.—Professor J. J. Thomson on "Röntgen, Cathode and Positive Rays."—III. 3 p.m.

Incorporated British Institute of Certified Carpenters.—Monthly meeting at Carpenters' Hall, London-wall. Mr. S. B. Savill on "Foreign Trees," illustrated by Oxy-Hydrogen Lantern views. At the conclusion of the lecture a resolution will be proposed by Mr. G. Ayres *re* "Our Aims and Objects." 6.30 p.m.

MONDAY, MARCH 4.

Royal Academy (Lectures on Architecture).—Professor R. T. Blomfield, A.R.A., on "The Limitations of the Arts." 4 p.m.

Society of Arts (Cantor Lectures).—Mr. F. Hamilton Jackson on "Romanesque Ornament."—II. 8 p.m.

Society of Engineers.—Mr. E. J. Stead on "The Connaught Bridge, Natal." 7.30 p.m.

University of London (Imperial Institute-road).—Mr. Banister Fletcher on "Early Christian Basilican Churches." 8 p.m.

Royal Institute of British Architects.—(1) Special General Meeting to elect the Royal Gold Medallist for the current year. The chairman to move—That, subject to His Majesty's gracious sanction, the Royal Gold Medal for the Promotion of Architecture be presented this year to Mr. John Belcher, A.R.A., Past-President. (2) The Ninth General Meeting (Business), to proceed with the Election of Candidates for Membership, and to receive the Report of the Council on the Resolutions with regard to the Question of Registration passed at the General Meeting of April 3, 1906. Mr. Wm. Woodward has given notice that he will bring forward the two following subjects: (1) The nature of subjects to be brought before a Business Meeting; (2) The powers of the Council to represent the General Body. Mr. Herbert W. Wills has given notice that he will ask the following question:—Whether any communications have been received from provincial and metropolitan architects asking the Council to take a poll of the members on the subject of the employment of officials in other than an administrative capacity, and also what action the Council propose to take in the matter. 8 p.m.

TUESDAY, MARCH 5.

Royal Sanitary Institute.—Demonstration for Sanitary Officers of Book-Keeping as carried out in a Sanitary Inspector's Office, at the Public Health Office, Town Hall, Upper-street, Islington, N. 7 p.m., by Mr. J. R. Leggatt.

Liverpool Architectural Society.—Professor Reginald Blomfield, M.A., A.R.A., on "Architecture and Craftsmanship." 6 p.m.

University College (Lectures on "Seven Ages of Architecture," by Professor F. M. Simpson).—VIII. 8 p.m.

Institute of Sanitary Engineers.—Students' Lecture. 7 p.m. "Supervision of Works in Progress," by Professor Henry Adams.

Society of Arts (Colonial Section).—Sir W. Hood Treacher, K.C.M.G., M.A., on "British Malay." 4.30 p.m.

Institution of Civil Engineers.—(1) Paper to be further discussed "On The Limits of Thermal Efficiency in Internal-Combustion Motors," by Mr. Dugald Clerk; and (2) Paper to be read on "The Construction of Overhead Electric Transmission-Lines," by Mr. A. P. Trotter, B.A., M.Inst.C.E. 8 p.m.

WEDNESDAY, MARCH 6.

Royal Archæological Institute.—The Rev. E. S. Dewick, M.A., F.S.A., on "Consecration Crosses and the Ritual Connected with Them." 4 p.m.

Society of Arts.—Professor W. Boyd Dawkins, D.Sc., on "The Discovery of the South Eastern Coalfield." 8 p.m.

Manchester Society of Architects (Club Night).—Mr. J. H. Grant on "School Planning."

Architectural Association Discussion Section.—Mr. J. Osborne Smith on "Sewage Disposal." 7.30 p.m.

Edinburgh Architectural Association.—"Historical Notes on the Treatment of Scottish Ecclesiastical Buildings," by Dr. Hay Fleming, LL.D. 8 p.m.

Northern Architectural Association.—Annual meeting. 7.30 p.m.

Royal Sanitary Institute (Lectures for Sanitary Officers). Dr. E. J. Steegmann on "Elementary Physics"—II. 8 p.m.

Institute of Sanitary Engineers.—Examination Committee. 5.30 p.m. Election Committee. 6.30 p.m.

Builders' Foremen and Clerks of Works' Association.—Ordinary meeting of the members. 8 p.m.

THURSDAY, MARCH 7.

Royal Institution.—Dr. W. Martin on "Old Dutch Painting and Painters."—II. 3 p.m.

Institution of Electrical Engineers.—Mr. J. S. Highfield on "The Transmission of Electrical Energy by Direct Current on the Series System." 8 p.m.

Civil and Mechanical Engineers' Society.—Mr. C. R. Allensby on "Types of Enclosed Steam Water-Heaters." 8 p.m.

Institute of Builders (31 and 32, Bedford-street, Strand, W.C.).—Finance Committee, 2.30 p.m. Council, 3 p.m.

FRIDAY, MARCH 8.

Architectural Association.—Mr. A. N. Prentice on "Spanish Architecture," illustrated by lantern views. 7.30 p.m.

Glasgow Architectural Craftsmen's Society.—Mr. P. M'Nair on "Building Stones of Scotland." 8 p.m.

Royal Sanitary Institute (Lectures for Sanitary Officers).—Dr. E. J. Steegman on "Elementary Chemistry." 7 p.m.

Institution of Civil Engineers (Students' Meeting).—Mr. A. T. Arnall on "Corrugations on Tram-rails." 8 p.m.

SATURDAY, MARCH 9.

Incorporated Clerks of Works' Association.—Twenty-fourth annual dinner at the Hotel Cecil. 6.15 p.m.

Aberdeen Architectural Association.—(1) Professor J. W. H. Traill, F.R.S., on "The Destroyers of Timber"; and (2) "Some Notes from Practical Experience of the Same" by Mr. J. Blake. 7.30 p.m.

Edinburgh Architectural Association.—Visits to (1) New offices of the North British and Mercantile Insurance Company, 64, Princes-street; (2) New premises of R. W. Forsyth, Ltd., Princes-street.

Royal Institution.—Professor J. J. Thomson on "Rontgen, Cathode, and Positive Rays."—IV 3 p.m.

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*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

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Hard Stocks	1	8	0	per 1000 alongside, in river.	
Rough Stocks and Grizzles	1	6	0	,,	,, ,,
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Best Fareham Red	3	12	0	,,	,, ,,
Best Red Pressed Ruabon Facing	5	0	0	,,	,, ,,
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Double Stretchers	19	0	0	,,	,,
Double Headers	16	0	0	,,	,, ,,
One Side and two Ends	19	0	0	,,	,, ,,
Two Sides and one End	20	0	0	,,	,, ,,
Splays, Chamferred, Squints	20	0	0	,,	,, ,,
Best Dipped Salt Glazed Stretchers, and Header	12	0	0	,,	,, ,,
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Double Stretchers	15	0	0	,,	,, ,,
Double Headers	14	0	0	,,	,, ,,
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PORTLAND STONE (20 ft. average)—Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	1	,,	,,
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Greenshill ,,	1	10	,,	,,
Darley Dale in blocks	2	4	,,	,,
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Scappled random blocks.	2	10	,,	,,
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	3	per ft. super.,	,,
6 in. rubbed two sides ditto, ditto	2	6	,,	,,
3 in. sawn two sides slabs (random sizes)	0	11½	,,	,,
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7½	,,	,,
1½ in. to 2 in. ditto, ditto	0	6	,,	,,

HARD YORK—

Scappled random blocks.	3	0	per ft. cube,	,,
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	8	per ft. super.,	,,
6 in. rubbed two sides ditto	3	0	,,	,,
3 in. sawn two sides slabs (random sizes)	1	2	,,	,,
2 in. self-faced random flags	0	5	,,	,,

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20×10 best blue Bangor	13	2	6	per 1000 of 1200 at r. d.
20×12 ,, ,,	13	17	6	,, ,,
20×10 first quality ,,	13	0	0	,, ,,
20×12 ,, ,,	13	15	0	,, ,,
16×8 ,, ,,	7	5	0	,, ,,
20×10 best blue Portmadoc	12	12	6	,, ,,
16×8 ,, ,,	6	12	6	,, ,,
20×10 best Eureka unfading green	15	17	6	,, ,,
20×12 ,, ,,	18	7	6	,, ,,
18×10 ,, ,,	13	5	0	,, ,,
16×8 ,, ,,	10	5	0	,, ,,
20×10 permanent green	11	12	6	,, ,,
18×10 ,, ,,	9	12	6	,, ,,
16×8 ,, ,,	6	12	6	,, ,,

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Hip and Valley tiles	3	7	per doz. ,,
Best Broseley tiles	50	0	per 1000 ,,
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Hip and Valley tiles	4	0	per doz. ,,
Best Ruabon red, brown, or brindled do. (Edwards)	57	6	,, ,,
Do. Ornamental do.	60	0	,, ,,
Hip tiles	4	0	per doz. ,,
Valley tiles	3	0	,, ,,
Best Red or Mottled Staffordshire do. (Peakes)	51	9	per 1000 ,,
Do. Ornamental do.	54	6	,, ,,
Hip tiles	4	1	per doz. ,,
Valley tiles	3	8	,, ,,
Best "Rosemary" brand plain tiles	48	0	per 1000 ,,
Best Ornamental tiles	50	0	,, ,,
Hip tiles	4	0	per doz. ,,
Valley tiles	3	8	,, ,,
Best "Hartshill" brand plain tiles, sand-faced	50	0	per 1000 ,,
Do. pressed	47	6	,, ,,
Do. Ornamental do.	50	0	,, ,,
Hip tiles	4	0	per doz. ,,
Valley tiles	3	6	,, ,,

WOOD.

BUILDING WOOD.	At per standard. £	s.	d.		£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	13	10	0	...	15	0	0
Deals: best 3 by 9	13	0	0	...	14	0	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	0	0	...	12	0	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	less than 7 in. and 8 in.			
Deals: seconds	1	0	0	less than best.			
Battens: seconds	0	10	0	,,			
2 in. by 4 in. and 2 in. by 6 in.	9	0	0	...	10	0	0
2 in. by 4½ in. and 2 in. by 5 in.	8	10	0	...	9	10	0
Foreign Sawn Boards—1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.			
¾ in.	1	0	0	,,			
	At per load of 50 ft.						
Fir timber: best middling Danzig or Memel (average specification)	4	10	0	...	5	0	0
Seconds	4	0	0	...	4	10	0
Small timber (8 in. to 10 in.)	3	12	6	...	3	15	0
Small timber (6 in. to 8 in.)	3	0	0	...	3	10	0
Swedish balks	2	10	0	...	3	0	0
Pitch-pine timber (30 ft. average)	4	0	0	...	4	15	0

JOINERS' WOOD.	At per standard. £	s.	d.		£	s.	d.
White Sea: first yellow deals, 3 in. by 11 in.	24	0	0	...	25	0	0
3 in. by 9 in.	22	0	0	...	23	0	0
Battens, 2½ in. and 3 in. by 7 in.	16	10	0	...	18	0	0
Second yellow deals, 3 in. by 1 in.	18	10	0	...	20	0	0
,, ,, 3 in. by 9 in.	17	10	0	...	19	0	0
Battens, 2½ in. and 3 in. by 7 in.	13	10	0	...	14	10	0
Third yellow deals, 3 in. by 11 in. and 9 in.	13	10	0	...	15	0	0
Battens, 2½ in. and 3 in. by 7 in.	11	0	0	...	12	0	0

WOOD (*continued*).

JOINERS' WOOD (*continued*)—	At per standard. £	s.	d.		£	s.	d.
Petersburg first yellow deals, 3 in. by 11 in.	21	0	0	...	22	10	0
Do. 3 in. by 9 in.	18	0	0	...	19	10	0
Battens	13	10	0	...	15	0	0
Second yellow deals, 3 in. by 11 in.	16	0	0	...	17	0	0
Do. 3 in. by 9 in.	14	10	0	...	16	0	0
Battens	11	0	0	...	12	10	0
Third yellow deals, 3 in. by 11 in.	13	0	0	...	14	0	0
Do. 3 in. by 9 in.	12	10	0	...	14	0	0
Battens	10	0	0	...	11	0	0
White Sea and Petersburg—							
First white deals, 3 in. by 11 in.	14	10	0	...	15	10	0
,, ,, 3 in. by 9 in.	13	10	0	...	14	10	0
Battens	11	0	0	...	12	0	0
Second white deals, 3 in. by 11 in.	13	10	0	...	14	10	0
,, ,, 3 in. by 9 in.	12	10	0	...	13	10	0
,, ,, battens	10	0	0	...	11	0	0
Pitch-pine: deals	18	0	0	...	21	0	0
Under 2 in. thick extra	0	10	0	...	1	0	0
Yellow Pine—First, regular sizes	44	0	0	upwards.			
Oddments	32	0	0	,,			
Seconds, regular sizes	33	0	0	,,			
Yellow Pine oddments	28	0	0	,,			
Kauri Pine—Planks, per ft. cube	0	3	6	...	0	5	0
Danzig and Stettin Oak Logs—Large, per ft. cube	0	3	0	...	0	3	6
Small ,, ,,	0	2	6	...	0	2	9
Wainscot Oak Logs, per ft. cube	0	5	6	...	0	6	0
Dry Wainscot Oak, per ft. sup. as inch	0	0	8½	...	0	0	9½
¾ in. do. do	0	0	7	...	—		
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0	0	9	...	0	1	0
Selected, Figury, per ft. super. as inch	0	1	6	...	0	2	6
Dry Walnut, American, per ft. super. as inch	0	0	10	...	0	1	0
Teak, per load	17	0	0	...	22	0	0
American Whitewood Planks, per ft. cube	0	4	0	...	0	5	0

Prepared Flooring, etc.—	Per square. £	s.	d.		£	s.	d.
1 in. by 7 in. yellow, planed and shot	0	13	6	...	0	17	6
1 in. by 7 in. yellow, planed and matched	0	14	0	...	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	...	1	0	0
1 in. by 7 in. white, planed and shot	0	12	0	...	0	14	6
1 in. by 7 in. white, planed and matched	0	12	6	...	0	15	0
1¼ in. by 7 in. white, planed and matched	0	15		...	0	16	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	...	0	13	6
1 in. by 7 in. ,, ,,	0	14	0	...	0	18	0
¾ in. by 7 in. white ,, ,,	0	10	0	...	0	11	6
1 in. by 7 in. ,, ,,	0	12	9	...	0	15	0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £	s.	d.		£	s.	d.
Rolled Steel Joists, ordinary sections	7	7	6	...	7	15	0
Compound Girders, ordinary sections	9	10	0	...	10	10	0
Steel Compound Stanchions	12	5	0	...	13	5	0
Angles, Tees, and Channels, ordinary sections	9	5	0	...	10	5	0
Flitch Plates	9	5	0	...	10	5	0
Cast Iron Columns and Stanchions including ordinary patterns	8	0	0	...	9	0	0

METALS.

	Per ton, in London. £	s.	d.		£	s.	d.
IRON—							
Common Bars	8	10	0	...	9	0	0
Staffordshire Crown Bars, good merchant quality	9	5	0	...	9	15	0
Staffordshire "Marked Bars"	11	0	0	...	—		
Mild Steel Bars	9	10	0	...	9	15	0
Hoop Iron, basis price	9	15	0	...	10	0	0
,, ,, Galvanised	17	10	0	...	—		
(*And upwards, according to size and gauge.)							
Sheet Iron Black—							
Ordinary sizes to 20 g.	10	0	0	...	—		
,, ,, 24 g.	11	0	0	...	—		
,, ,, 26 g.	12	10	0	...	—		
Sheet Iron, Galvanised, flat, ordinary quality—							
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	16	0	0	...	—		
Ordinary sizes to 22 g. and 24 g.	16	10	0	...	—		
,, ,, 26 g.	17	0	0	...	—		
Sheet Iron, Galvanised, flat, best quality—							
Ordinary sizes to 20 g.	19	0	0	...	—		
,, ,, 22 g. and 24 g.	19	10	0	...	—		
,, ,, 26 g.	21	0	0	...	—		
Galvanised Corrugated Sheets—							
Ordinary sizes 6 ft. to 8 ft. 20 g.	16	0	0	...	—		
,, ,, 22 g. and 24 g.	16	5	0	...	—		
,, ,, 26 g.	17	10	0	...	—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	13	0	0	...	—		
Best Soft Steel Sheets, 22 g. & 24 g.	14	0	0	...	—		
,, ,, ,, 26 g.	16	0	0	...	—		
Cut Nails, 3 in. to 6 in.	10	15	0	...	11	5	0

(Under 3 in., usual trade extras.)

LEAD, &c.

	Per ton, in London. £	s.	d.		£	s.	d.
LEAD—Sheet, English, 3lb. and up.	22	12	6	...	—		
Pipe in coils	23	2	6	...	—		
Soil pipe	25	2	6	...	—		
Compo pipe	25	7	6	...	—		
ZINC—Sheet—							
Vieille Montagne ton	34	5	0	...	—		
Silesian	34	0	0	...	—		
COPPER—							
Strong Sheet per lb.	0	1	4	...	—		
Thin ,, ,,	0	1	5	...	—		
Copper nails ,,	0	1	3	...	—		
BRASS—							
Strong Sheet ,,	0	1	2	...	—		
Thin ,, ,,	0	1	3	...	—		
TIN—English Ingots ,,	0	1	11	...	—		
SOLDER—Plumbers' ,,	0	0	9	...	—		
Tinmen's ,,	0	0	11½	...	—		
Blowpipe ,,	0	1	1	...	—		

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

15 oz. thirds	2½d.	per ft. delivered.
,, fourths	1¾d.	,, ,,
21 oz. thirds	3¼d.	,, ,,
,, fourths	2½d.	,, ,,
26 oz. thirds	4¼d.	,, ,,
,, fourths	3¼d.	,, ,,
32 oz. thirds	5d.	,, ,,
,, fourths	4¼d.	,, ,,
Fluted Sheet, 15 oz.	3¼d.	,, ,,
,, 21 oz.	4¼d.	,, ,,

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

¼ Hartley's	2½d.	per ft. delivered.
⅜ ,,	2¾d.	,, ,,
½ ,,	3d.	,, ,,
Figured and Oxford Rolled "Oceanic" Glass, white ...	4d.	,, ,,
Do. ,, tinted ...	5¼d.	,, ,,

OILS, &c.		£ s. d
Raw Linseed Oil in pipes	per gallon	0 1 11
,, ,, ,, in barrels	,,	0 2 0
,, ,, ,, in drums	,,	0 2 2
Boiled ,, ,, in pipes	,,	0 2 1
,, ,, ,, in barrels	,,	0 2 2
,, ,, ,, in drums	,,	0 2 4
Turpentine in barrels	,,	0 4 3
,, in drums	,,	0 4 6
Genuine Ground English White Lead	per ton	26 0 0
Red Lead, Dry	,,	24 10 0
Best Linseed Oil Putty	per cwt.	0 7 0
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

TO CORRESPONDENTS

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TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

BRISTOL.—For the erection of a new house, for Mr. S. Pim Jackson. Mr. W. H. Watkins, A.R.I.B.A., architect, 15, Clare street, Bristol:—

T. R. Lewis* £925

BROMYARD.—For erection of two cottages on the Firs Estate, Bromyard Herefordshire. Mr. Herbert Skyrme, architect, 138, Widemarsh-street, Hereford:—

W. James, Builder, Bromyard £450

CARDIFF.—For 1,700 lineal yds. of unclimbable steel anglebar fencing and gates to be erected at the Mental Hospital, Whitchurch, for the Corporation:—

Chiswick Iron Co.	£4,221 12 10
Harrison, Bolmer, & Co.	3,033 7 6
Rubey, Owen, & Co.	2,935 5 0
W. J. Mullings	2,605 17 6
Hill & Smith	2,604 16 6
W. Bain & Co.	2,350 5 0
Cross Bros.	2,258 7 5
J. Priest & Son, Ltd.	1,932 4 1
W. Rowe	1,874 19 6
W. Gratrix & Son, Walkden, near Manchester*	1,662 7 6

CHATHAM.—For building laundry and boiler house for the Medway Union. Mr. E. F. Cobb, architect, Rochester:—

Emerson	£,3461	Snow	£2,500
Langley	3,205	Gates	2,480
Tuffee	2,860	Webb	2.475
Chesswas	2,757	Lonsdale	2,418
Browning	2,650	Miskin	2,367
Johnson & Son	2,633	Cornelius & Son	2,350
Loasby & Salmon	2,624	Monk	2,335
West Bros.	2,590	Phillips	2,310
Blay	2,570	Filley	2,206
Baker	2,555	C. E. Skinner, Chatham*	2,193
Barden & Head	2,544		

[Architect's estimate £2,530.]

CHATHAM.—For building bakery and stables, Medway Union. Mr. E F. Cobb, architect, Rochester:—

	A	B	Total.
	£ s. d.	£ s. d.	£ s. d.
Emerson	1,473 0 0	152 0 0	1,625 0 0
Langley	1.369 0 0	125 0 0	1,494 0 0
Loasby & Salmon	1.128 0 0	130 0 0	1,258 0 0
Tuffee	1,038 0 0	154 0 0	1,192 0 0
Browning	965 0 0	130 0 0	1,095 0 0
Chesswas	957 0 0	128 0 0	1,085 0 0
West Bros.	959 0 0	125 0 0	1,084 0 0
Johnson & Son	980 0 0	86 0 0	1,066 0 0
Barden & Head	925 0 0	125 0 0	1,050 0 0
Baker	919 0 0	115 0 0	1,034 0 0
Blay	927 0 0	93 0 0	1,020 0 0
Webb	928 0 0	85 0 0	1,013 0 0
Lonsdale	894 0 0	106 0 0	1,000 0 0
Miskin	874 6 7	125 4 0	999 10 7
Cornelius & Son	898 10 0	101 0 0	999 10 0
Gates	870 0 0	116 0 0	986 0 0
Skinner	821 0 0	138 0 0	959 0 0
Monk	851 0 0	98 0 0	949 0 0
Filley	800 0 0	144 0 0	944 0 0
Snow	872 0 0	60 0 0	932 0 0
H. E. Phillips, Gillingham*	810 0 0	110 0 0	920 0 0

[Architect's estimate £960.]

CHISWICK.—For additions to the Acton and Chiswick Polytechnic, for the Middlesex County Council. Mr. H. G. Crothall, Architect to the Education Committee:—

Gough & Co.	£8.292 0	D. D. Heath	£7,350 0
W. Gibson & Co.	7 994 0	J. Barker & Co., Ltd.	7,287 0
H. Lovatt, Ltd.	7,950 0	J. Dorey & Co., Ltd.	7,099 0
Spencer, Santo, & Co.	7,797 0	W. Lawrence & Son	7,074 0
G. Bellom	7,655 0	W. Johnson & Co., Ltd.	7,047 0
W. Lacey	7,525 0	Wisdom Bros., Isleworth*	6,899 10
F. G. Minter	7,509 0		
H. Knight & Son	7,464 0		
W. J. Dickens	7,400 0		
W. J. Renshaw	7,377 0		

CHURCH (Lancashire).—For sewering and paving of Back Dill Hill-lane West, for the Urban District Council. Mr. W. E. Wood, Surveyor, Council Offices, Church:—

T. Brown, Accrington*, Sharples Bros., Exors. A. Broadley } Per schedule.

ELLESMERE PORT.—For 3,000 square yards of 2½-in., hand-made concrete flags for Ellesmere Port and Whitby Urban District Council. Mr. J. M. Hudson, Surveyor, Bank-buildings, Ellesmere Port, near Chester:—

	per super yd. s. d.		per super yd. s. d.
Gibbs Bros.	4 2	Glyn Granite Co., Ltd.	2 10
Groft Granite Co., Ltd.	3 6	Premier Artificial Stone Co, Ltd.	2 8
Threlkeld Granite Co., Ltd	3 4	Hall & Pickles	2 8
		Granites Ltd*	2 8

GUILDFORD.—For additions, alterations, and reparations to the old school-buildings at the Workhouse, for use as Relief Infirmary, for the Guardians. Mr. E. L. Lunn, architect, 36, High-street, Guildford:—

Swayne & Son, Guildford £876

[Six other firms also tendered.]

HANDSWORTH.—For erecting cookery, laundry, laboratory, and manual workshop at Rookery-road Council Schools, for the Education Committee. Messrs. Wood & Kendrick, Architects, High-street, West Bromwich:—

W. Corson	£2,943 18 11	B. Whiteham & Son	£2,421 0 0
H. Smith & Son	2,729 0 0	T. Hardy	2 385 0 0
R. & E. Woodward	2,599 0 0	Maddocks & Walford	2,372 13 7
Walton Bros.	2,598 0 0	G. Good	2,337 7 0
A. Ford	2,498 12 8	W. Bishop	2,297 0 0
R. Merton Hughes	2,481 0 0	J. Webb	2,285 0 0
T. A. Cole & Son	2,475 0 0	J. Dallen & Son	2,275 0 0
W. & J. Webb	2,450 0 0	T. Elvins	2,270 0 0
		G. Webb*	2,235 0 0

HANWELL.—For new cookery and manual training centre at St. Ann's Council Schools, Hanwell, for the Middlesex County Council. Mr. H. G. Crothall, Architect to the Education Committee:—

T. Platford & Son	£1,544	J. Dorey & Co. Ltd.	£1,449
A. & B. Hanson	1,542	W. J. Dickens	1.440
Tribe & Co. Ltd.	1,519	J. Barker & Co. Ltd.	1,383
Mattock & Parsons	1.487	W. Lacey (Hounslow)*	1,346
G. Bollom	1,486		

HAYES.—For the erection of a new Council school at Clayton-road, Hayes, Middlesex, for the Middlesex County Council. Mr. H. G. Crothall, Architect to the Education Committee:—

H. Lovatt, Ltd.	£3 900	W. J. Renshaw	£3,642
F. G. Minter	3,868	A. & B. Hanson	3,590
C. F. Kearley	3,855	W. Portsmouth	3,577
H. Knight & Son	3,759	Fairhead & Son	3,555
W. Johnson & Co., Ltd.	3,680	W. Lawrence & Son, Tottenham*	3,544
Fassnidge & Son	3,651		

HEREFORD.—For constructing an ice manufactory and new machine-room at the "Standard Works," Berrington-street, for Messrs. Kemp & Brook. Mr. W. E. H. Clarke, architect and surveyor, Cathedral-chambers, Hereford. Quantities by architect:—

T. Hiles	£575 0	C. Cooke	£523 0
Beavan & Hodges	573 18	W. Bolt	500 0
R. Friend	573 0	E. W. Wilks*	470 0
W. Powell	565 0		

LONDON.—For erection of secondary school, Hortensia-road site, Chelsea, for the London County Council:—

Martin, Wells, & Co., Ltd.	£28,491 0 0
J. Garrett & Son	28,460 0 0
J. & C. Bowyer	27,378 0 0
J. Allen & Sons, Ltd.	26,997 0 0
W. Johnson & Co., Ltd.	26,839 0 0
A. M. Coles	26,706 15 6
G. E. Wallis & Sons, Ltd.	26,687 0 0
J. & M. Patrick	26,389 0 0
F. & E. Davey, Ltd.	24,375 7 5
Holliday & Greenwood, Ltd.	26,297 0 0
E. J. Clayton	25,791 8 10
C. Wall, Ltd.	24,520 4 4
B. E. Nightingale, Albert-embankment*	24,334 0 0

[The estimate of the Architect (Education), comparable with the tenders, is £26,517.]

LONDON.—For new school for junior mixed children, Rushmore-road, Hackney, S., for London County Council:—

W. Gregar & Son	£8,159 0
Leslie & Co., Ltd.	7,917 0
J. C. Richards & Co.,	7.671 0
Todd & Newman	7,610 0
S. N. Soole & Son	7,580 10
J. Appleby & Sons	7,558 0
Killby & Grayford, Ltd.	7,392 0
J. Greenwood, Ltd.	7,201 0
J. Grover & Son	7,175 0
Perry & Co.	7,117 0
McCormick & Sons	7,071 0
C. F. Kearley	7,053 0
E. Triggs	7,044 0
L. H. & R. Roberts	7,017 0
W. Shurmur & Sons, Ltd.	6,993 0
G. Godson & Sons	6,992 0
E. Lawrance & Sons	6,898 0
W. H. Lascelles & Co., Ltd.	6,873 0
Treasure & Son, Cottenham-road, Upper Holloway*	6,707 0

[The estimate of the Architect (Education), comparable with the tenders, is £6,259.]

LONDON.—For electric lighting, electric bells, etc., required in connexion with section "A" (art block), of the London County Council Hammersmith Technical Institute:—

Blackburn, Starling & Co.	£2,639 0
J. E. Spagnoletti & Co.	2,195 0
R. Brightwell	2,185 0
Army and Navy Auxiliary Co-operative Supply, Ltd.	2,184 0
J. O. Grant & Taylor	1,914 0
Seth Bros.	1,705 0
Wippell Bros. & Row	1,700 0
Higgins & Griffith, Ltd.	1,650 0
F. A. Glover & Co., Ltd.	1,626 0
W. J. Fryer & Co.	1 559 0
S. G. Cozens	1,484 0
Sweet Bros.	1,465 0
A. W. Penrose & Co.	1,466 0
W. Barton & Sons	1,420 0
Smeeton & Page, 63, Queen Victoria-street*	1,368 5

LONDON.—For reconstruction of tramways from Aldgate to Stamford-hill, supply of special trackwork, for the London County Council:—

Hadfield Steel Foundry Co., Ltd., of Sheffield.. £16,000

LONDON.—For roadwork and paving works (reconstruction of tramways from Vauxhall to Brixton, and construction of new lines from Goose-green to Peckham, and along Tooting High-street and Mitcham-road), for the London County Council:—

Name of Firm Tendering.	Tramway Works. £ s. d.	Paving Works for Street Widenings. £ s. d.	Total. £ s. d.
J. G. White & Co., Ltd.	94,898 18 4	6,078 11 8	100,977 10 0
W. Griffiths & Co., Ltd.	86,959 14 6	5,131 18 6	92,091 13 0
J. Mowlem & Co., Ltd.	83.010 18 0	4,703 2 0	87,714 0 0
R. W. Blackwell & Co., Ltd.	79,524 15 11	4,482 8 2	84,007 4 1
Dick, Kerr, & Co., Ltd.	78,320 14 10	4.732 3 6	83,052 18 4
W. Manders, Leyton*	77,917 17 8	4,804 3 10	82,722 1 6

[The Chief Engineer's estimate comparable with the tenders is £91,959 16s. 5d. Mr. W. Manders to be allowed to sub-let to the undermentioned firms (or to such other persons or firms as may be approved by the Chief Engineer under the contract) the following portions of the work specified, namely—(i.) to the Anderston Foundry Company, Ltd., of Middlesbrough, the manufacture of the yokes and cast-iron work: (ii.) to the Hadfield Steel Foundry Company, Ltd., of Sheffield, the manufacture of the cast-steel work for plough batches, etc.; (iii.) to Doulton's, Ltd., of London, the manufacture of the pipes, gullies, etc.; (iv.) to Messrs. Bayliss, Jones, & Bayliss, Ltd., the manufacture of the tie-bars, bolts, etc.; (v.) to the Saxon Cement Company, of Cambridge, or the Associated Portland Cement Manufacturers, Ltd., the supply of cement; (vi.) to Messrs. A. C. W. Hobman & Co., the tar-paving work; (vii.) to Messrs. Watlington & Co., and Mr. T. Bolton, of Oakmoor, the supply of the copper bonds; and (viii.) to Messrs. Johnson & Phillips, of London, the supply of the cables.]

LONDON.—For special schools, Osborn-place, Whitechapel, for the London County Council :—

Perry & Co.	£6,539 0 0
J. Appleby & Sons	6,508 0 0
T. D. Leng	6,333 0 0
Killby & Gayford	6,188 0 0
J. Parsons	6,179 0 0
A. E. Symes	6,074 0 0
T. J. Hawkins & Co.	6,043 11 10
E. Lawrence & Sons	5,996 0 0
J. Chessum & Sons	5,983 0 0
J. Grover & Son, Wilton Works, New North-road, Islington*	5,983 0 0

[The estimate of the Architect (Education), comparable with these tenders is £6,254.]

LONDON. — For reconstruction of tramways in Goswell-road, Pentonville-road, and Gray's-inn-road, and construction of new lines in St. John-street for road-work for the London County Council :—

Fry Bros.	£73,028 7 8
J. Mowlem & Co., Ltd.	70,893 0 0
W. Griffiths & Co., Ltd.	69,832 8 6
J. G. White & Co., Ltd.	65,675 12 0
W. Manders	63,999 13 7
Dick, Kerr, & Co., Ltd.	60,945 11 7
R. W. Blackwell & Co., Ltd., London*	60,059 19 7

[The Chief Engineer's estimate comparable with the tenders is £67,728 13s. 2d. Messrs. R. W. Blackwell & Co., Ltd., to be allowed to sub-let to the undermentioned firms (or to such other persons or firms as may be approved by the Chief Engineer under the contract) the following portions of the work specified, namely—(i.) to the Anderston Foundry Company, Ltd., of Middlesbrough, the manufacture of the yokes; (ii.) to the Hadfield Steed Foundry Company, Ltd., of Sheffield, the manufacture of cast-steel work, for plough hatches etc.; (iii.) to Messrs. Bayliss, Jones, & Bayliss, Ltd., the manufacture of the ironwork, such as tie-bars, bolts, etc.; and (iv.) to the Associated Portland Cement Manufacturers, Ltd., the supply of cement.]

LONDON.—For erection of crane, Elephant-and-Castle sub-station, for the London County Council :—

Carrick & Ritchie	£220
J. Smith & Co. (Keighley), Ltd.	155
Jessop & Appleby Bros. (Leicester & London), Ltd.*	136

LONDON.—For trucks for 300 electric cars, for the London County Council :—

The Metropolitan Amalgamated Railway Carriage & Wagon Co., Ltd.	£51,675
Thornewill & Warham	50,700
Peckham Engineering Co.	49,500
Mountain & Gibson, Ltd. (alternative)	49,350
Mountain & Gibson, Ltd. (alternative)	45,600
Mountain & Gibson, Ltd. (alternative)	45,510
Mountain & Gibson, Ltd. (alternative)	45,030
Mountain & Gibson, Ltd.	44,250
Heenan & Froude, Ltd.	43,500
Kerr, Stuart, & Co., Ltd., London and Stoke*	40,800

LONDON.—For the erection of seven shops and houses at Shepherd's Bush, for the Home Counties Land Company, Ltd., Chancery-lane, W.C. Mr. J. H. Richardson, architect, King-street, Hammersmith. (No quantities) :—

—	Estimate A	Estimate B	Estimate C	Estimate D	Total.
	£	£	£	£	£
Spencer, Santo, & Co.	5,859	2,803	2,195	700	11,557
J. Barker & Co.	5,737	2,719	2,155	797	11,408
Leslie & Co.	5,151	2,487	2,804	576	11,018
C. Dearing & Son	5,545	2,710	2,124	602	10,981
Kingerlee & Co.	4,585	2,247	1,797	530	9,159

LONDON.—For fencing between park and college land, Avery-hill, for the London County Council :—

Bayliss, Jones, & Bayliss, Ltd.	£498 17 6
E. J. Raybould & Co., Ltd.	487 0 0
L. Faulkner & Sons	484 0 0
Hill & Smith	481 10 0
M. McVey	475 5 9
J. Elwell	475 0 0
W. Gratrix & Sons, Allan-street Iron-works, Walkden	413 19 0

[It is also necessary to provide a length of about 38 ft. of oak fencing, and the quotations received for the work are as follows :—J. Stenning & Son, £15 10s.; W. Bowen, £15 15s.; and B. Horton & Son, £16 7s.]

MACCLESFIELD.—For alterations to small plunge bath, for the Bath Committee. Mr. C. W. Stubbs, Borough Engineer. Quantities by Borough Engineer :—
G. Simpson & Son, Windmill-street £103

NEW MILLS.—For water mains, for the Urban District Council :—

	For 3rd.	For 4th.
Stanley Coal & Iron Co., Ltd., Stanley, near Chesterfield*	£5 11 3	£5 10 10

SCARBOROUGH.—For the conversion of the refreshment room into a concert hall for the People's Palace and Aquarium Co. Mr. C. Edeson, architect and surveyor, 25, Huntriss-row, Scarborough :—

Bricklayer : J. W. Bland, Nelson-street*	£340 0 0
Carpenter and Joiner : F. W. Plaxton, North-street*	513 10 10
Smith and Founder : H. Pickup, Brook-street*	524 14 0
Plumber : D. Maynard, Castle-road*	430 0 0
Painter : R. Kelly, Aberdeen Walk*	124 18 0
Slater : J. Hardgrave, Falsgrave-road*	5 10 0

[All of Scarborough.]

SHIRLEY.—For the erection of stabling accommodation at Clock House, for the Corporation of Southampton. Mr. J. A. Crowther, Borough Engineer :—

E. Preece	£3,061 0	H. Lawrence	£2,395 0
Bagshaw & Son	2,960 0	F. Osman	2,380 0
L. J. Richards	3,600 0	Jenkins & Sons, Ltd.	2,367 0
H. Stevens & Co.	2,586 0	G. R. Long, Southampton*	2,342 0
J. Nichol	2,514 0		
H. C. Dyett	2,437 9		
W. Jupe	2,421 0		

SOUTHALL.—For the erection of new Council School, Clifton-road, Southall, for the Middlesex County Council. Mr. H. G. Crothall, Architect to the Education Committee :—

F. G. Minter	£6,067	W. Lawrence & Son	£5,474
Treasure & Son	5,867	Mattock & Parsons	5,430
G. Bollom	5,775	Wisdom Bros.	5,365
Knight & Son	5,701	W. J. Renshaw	5,365
J. Barker & Co., Ltd.	5,682	A. & B. Hanson, Southall*	5,339
W. J. Dickens	5,631		
J. Dorey & Co., Ltd.	5,590		

WHADDON. — For new school, Whaddon, near Gloucester, for the Gloucestershire Education Committee. Mr. R. S. Phillips, Architect, Shire Hall, Gloucester :—

W. S. Kent	£3,586	L. H. Tombs	£2,220
E. Preice	2,613	Orchard & Par	2,220
W. F. Drew	2,399	J. G. Norman	2,200
J. Gurney	2,390	W. Bowers & Co.	2,180
A. King & Sons	2,385	Byard & Son	2,175
Freeman & Jones	2,357	Collins & Godfrey	2,168
J. Simmonds	2,334	Baxter & Son	2,164
W. Jones	2,260	W. F. Nicholls Gloucester*	2,075
E. Walters & Sons	2,257		

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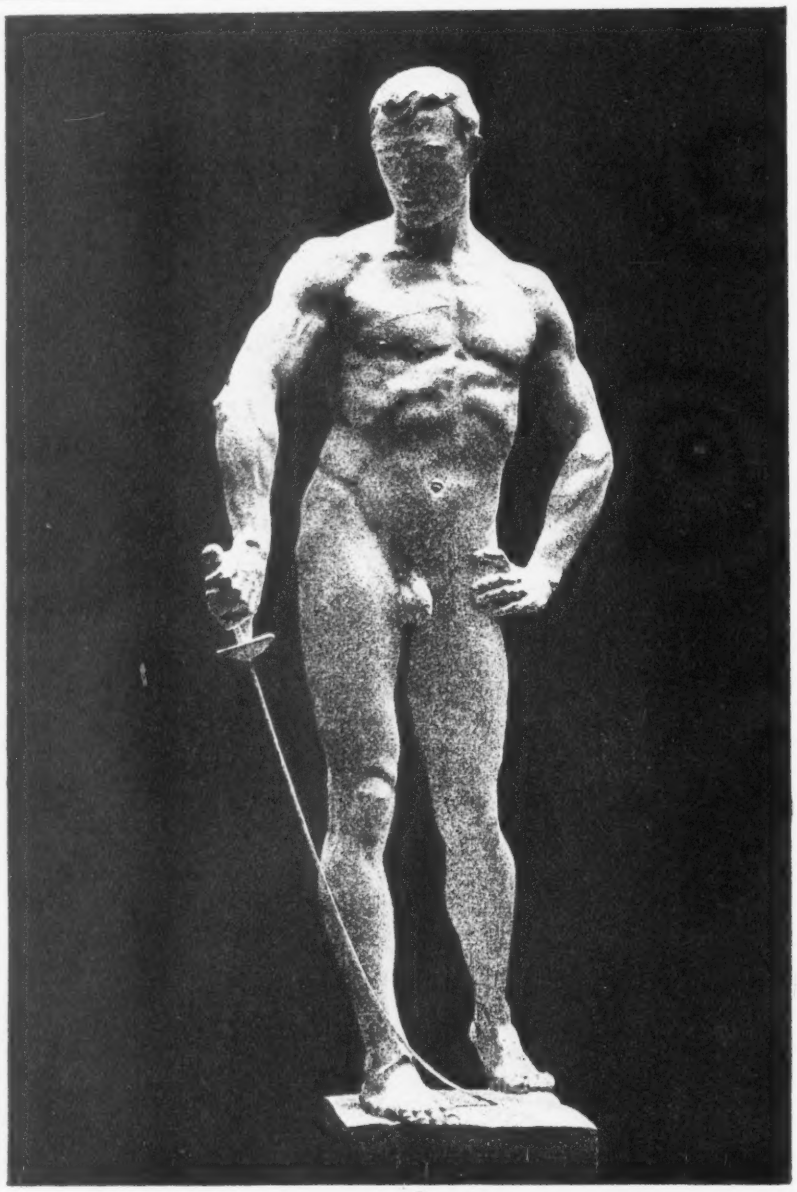

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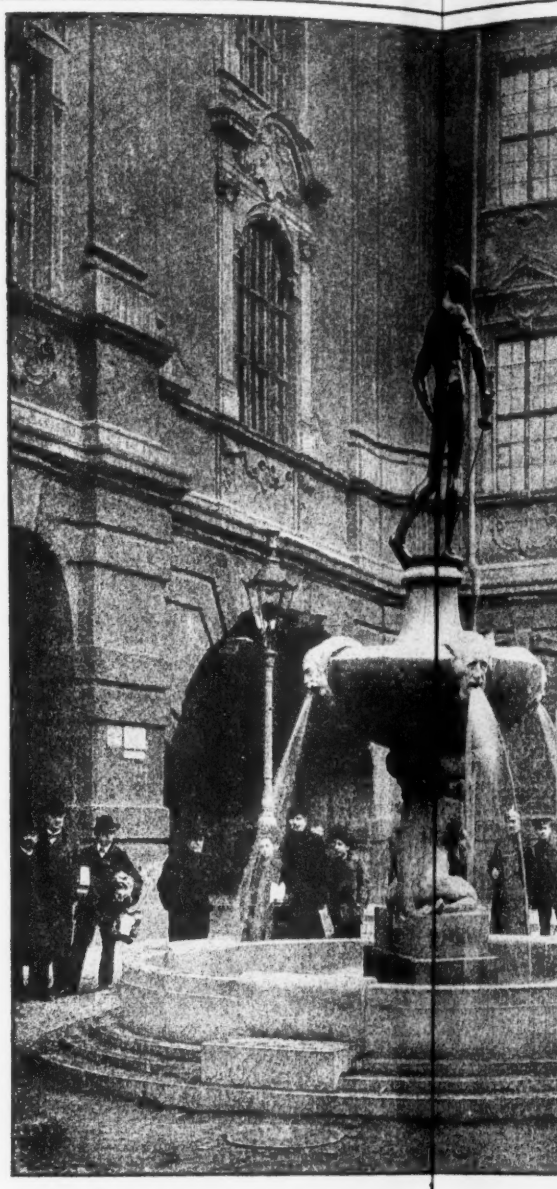

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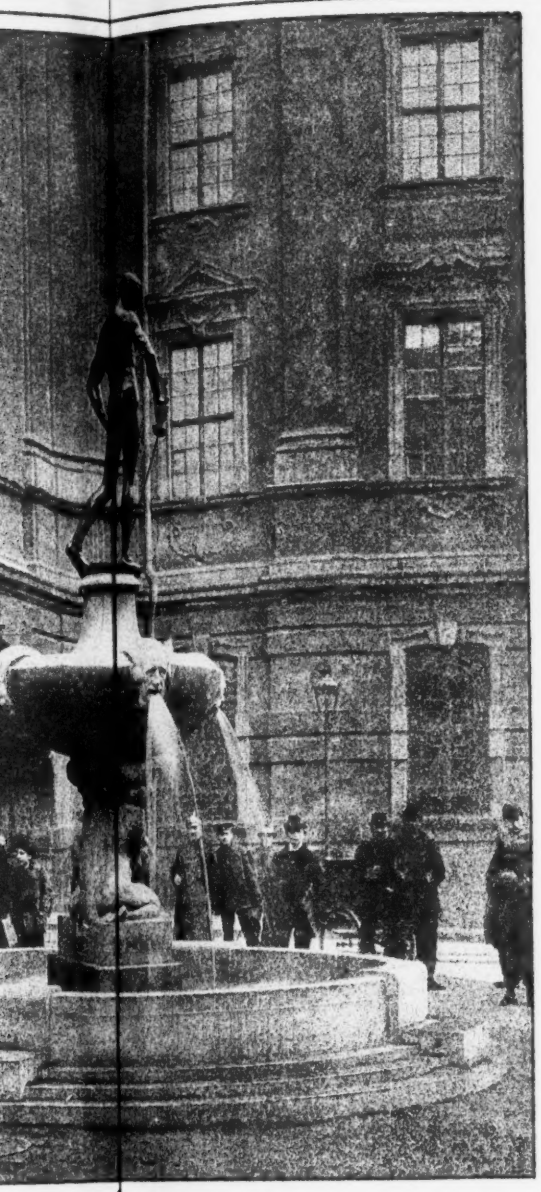

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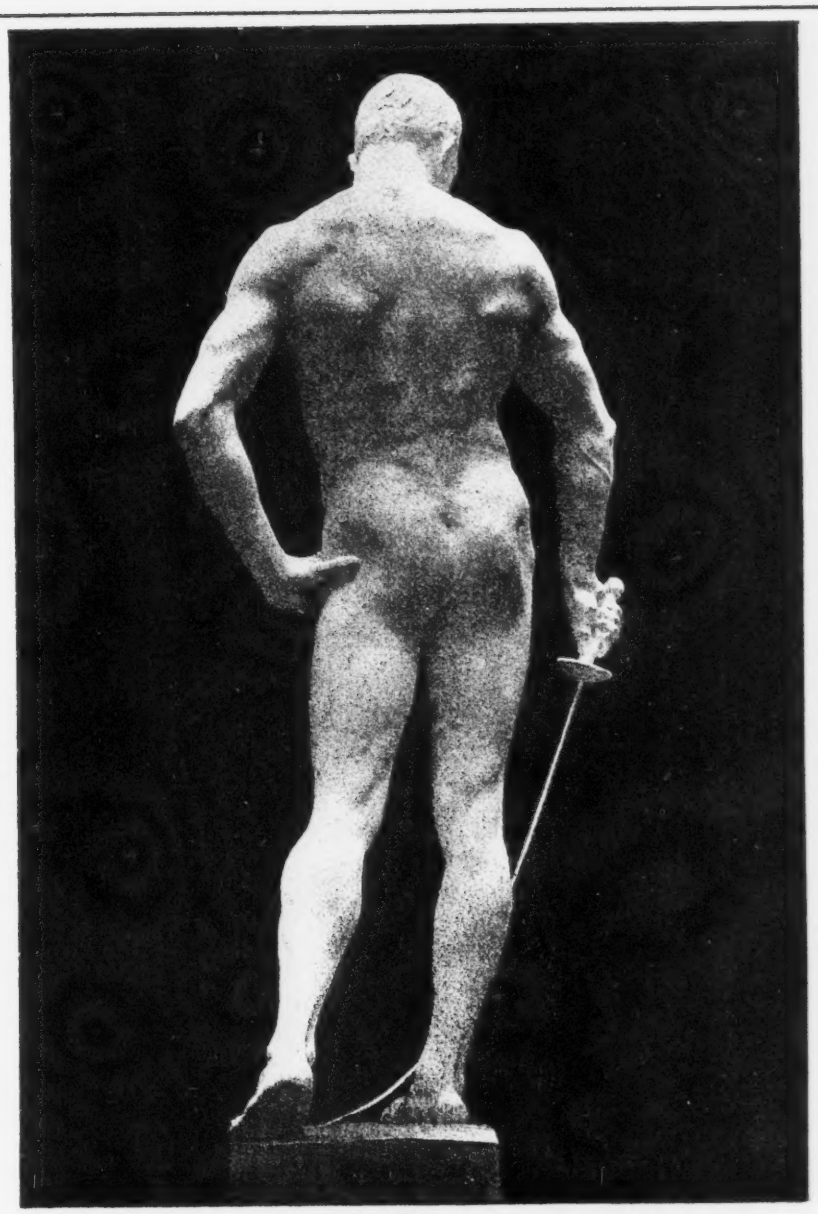

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1. Fountain, Breslau University.
2-3. Terminal Figure: "The Fighter."
4. Base of Fountain.
5. Figures on Grave-stone, Hamburg.
6. Heads of Figures in profile.

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GRAVE SCULPTURE AT HAMBURG.—By Herr Hugo Lederer.

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"ST. GEORGE": PAINTED PANEL AT RANWORTH CHURCH.—Drawn by Mr. William Davidson

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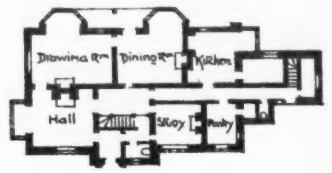

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HOUSE AT
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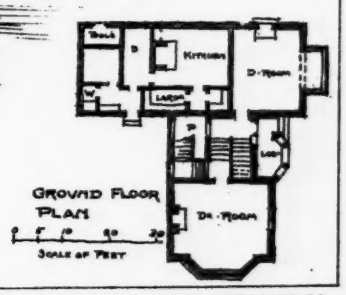

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"ST. MICHAEL SLAYING THE DRAGON": PAINTED PANEL AT RANWORTH CHURCH.—Drawn by Mr. William Davidson.

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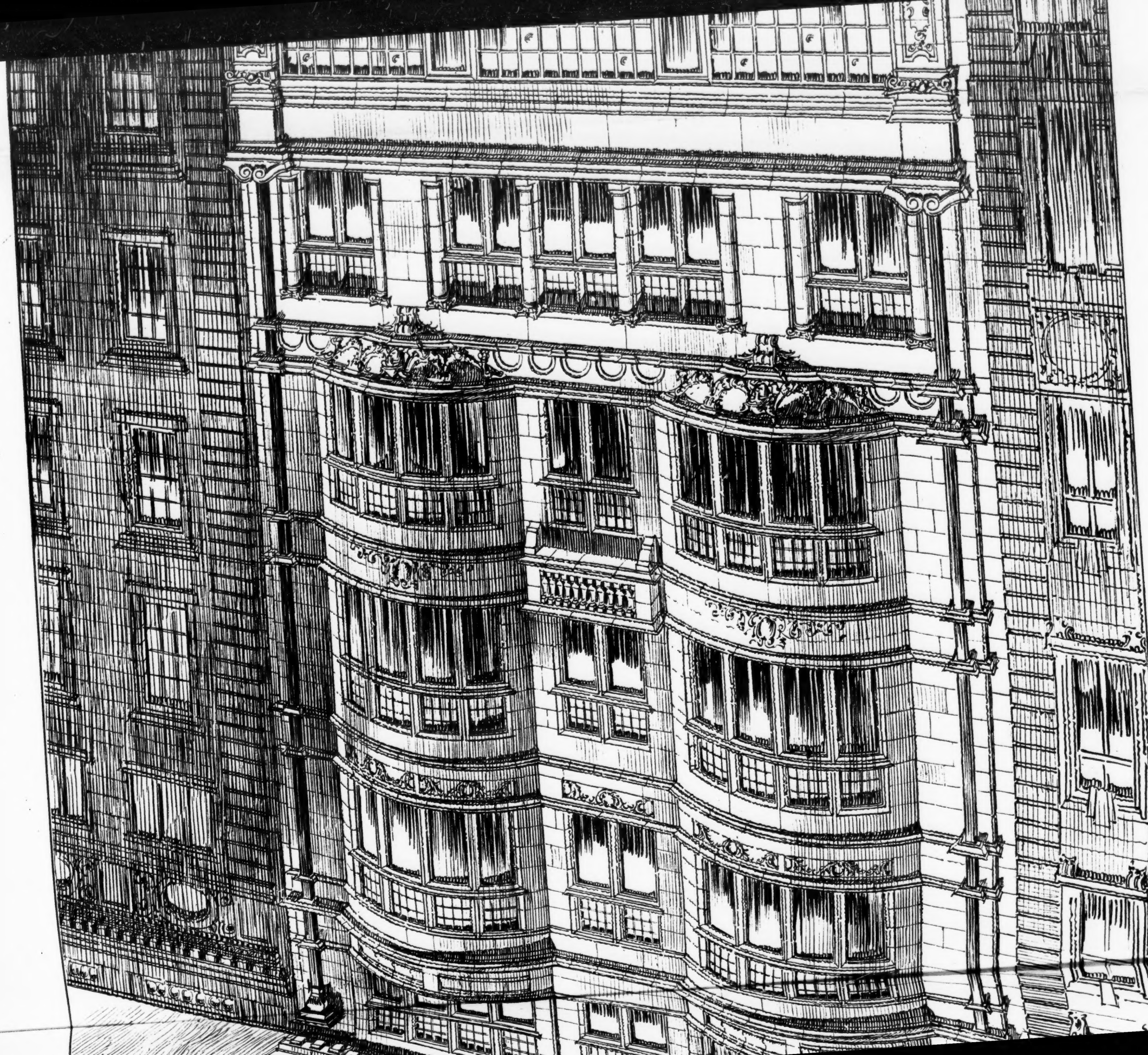

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